

THE EFFECTS OF COMPUTER-MEDIATED PEER REVIEW ON PRE-SERVICE
EFL TEACHERS' WRITING ABILITY AND SELF-EFFICACY: A CASE STUDY

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DEDICATION

I dedicate this degree to my mom, dad, and sister, Sawika Sanklang, Pichai Kaewkaemket, and Suppakan Kaewkaemket, for all their support, encouragement, and always believing in me. I would not have come this far without my family. Being a single mom, raising a teenage boy, and being a doctoral student, they made my life easier and more meaningful. While moving to Texas with my son, my mom traveled back and forth between Thailand and Texas to visit every year during this journey. Her sacrifices mean a lot to me and my son. My dad always gave me support when I needed his help or advice. Also, my sister was my personal therapist and counselor. She helped fix my relationship problems with my son and helped me understand my teenager better. My mom, dad, and sister made me feel safe as they walked in this journey with me. Thank you, Mom, Dad, and Sister, for always being there for me, unconditionally loving me, caring for me, teaching me, encouraging me, empowering me, and never giving up on me.

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ABSTRACT

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The purpose of this qualitative case study was to examine the effect of experiencing computer-mediated peer review (CMPR) on pre-service EFL teachers' writing performance, their peer comments, and their revisions. The study also explored their perceptions of CMPR and computer mediated communication (CMC) features (i.e., *Microsoft Word's* Track Changes and Comments and *Zoom* interaction), implemented in this study, and analyzed their sense of writing self-efficacy after the preparation. This case study involved four pre-service teachers, who were chosen from a writing class of 34 students, and their writing instructor (for interview only), through a purposive sampling. These pre-service teachers were also second-year English majors attending a four-year program of the faculty of Education at a public university in Northeastern Thailand. The qualitative data were collected from pre-and post-tests (i.e., the students' first and second drafts), pre-and post-questionnaires, and interviews.

The findings of this study indicated that CMPR is an effective approach to improve pre-service teachers' writing ability, enhance the quality of their peer comments (i.e., peer-oriented comment revisions), and increase the number of peer-oriented comment revisions. Further, all pre-service teachers had positive attitudes towards CMPR. They self-reported that this CMPR writing experience was useful and fun. Their sense of writing self-efficacy increased through the CMPR activity.

The findings of this study suggested that teacher preparation programs and writing instructors should provide as much background knowledge of essay writings

(e.g., a five-paragraph essay structure) and technology applications in pre-service coursework (i.e., writing) as needed for future classroom application. Pre-service teachers should also be taught how to organize the essay and how to provide constructive feedback to their peers to be capable of giving it to their future students.

Although the university in this study does not offer online courses and programs for pre-service teachers, the curriculum should prepare these future teachers with sufficient and various writing experience in both traditional face-to-face and online forms, so they can transfer and apply them into their future classroom instruction and pedagogy.

KEY WORDS: Thailand, Computer-mediated peer review, CMPR, Peer review, Peer feedback, Pre-service teachers, EFL writing, Writing self-efficacy

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CHAPTER I

Introduction

Background of the Study

Peer review has been employed in English as a foreign/second language (EFL/ESL) writing instruction for decades. This strategy involves learners working collaboratively in pairs or small groups reading and commenting on one another's piece of writing. In peer review, students "learn to describe the organizational structure of a peer's paper, paraphrase it, and comment both on what seems well done and what the author might do to improve the work" (Bruffee, 1984, p. 638). The writing ability of the peer reviewer and the peer reviewee, as well as the quality of the peer's work, tends to improve when students obtained help from peers and the peer review activity itself (Bruffee, 1984).

The benefits of peer review for teachers and learners has been well documented in previous studies. For example, peer review reduces teachers' workloads and improve learners' writings (Bean, 2011; Rubin & Turner, 2012). It is laborious and time-consuming for teachers to review each student's paper and providing feedback over the drafting process. Also, teachers use peer feedback to supplement teachers' comments to assess students' writing (Ho, 2015). In addition, peer review develops students' cognitive, metacognitive, social, linguistic (Lui & Chai, 2006; Min, 2006), and critical thinking skills (Yu & Wu, 2011), as well as self-efficacy (Hsia et al., 2016). Furthermore, researchers found that peer review can promote students' autonomous learning and self-regulation through viewing their own work from the perspectives of others (Lui & Chai, 2006; Min, 2006). However, some researchers have argued that peer review is "nothing

more than the blind leading the blind with unskilled editors guiding inexperienced writers in a process neither understand well” (Liu & Chai, 2006, p. 33).

According to Berg (1999), students, especially those who have been trained in peer review, are capable of giving specific comments and useful suggestions about their peers’ drafts. This claim has been supported by many researchers (Baker, 2016; Guardado & Shi, 2007; Ho, 2015; Ho & Savignon, 2007; Liu & Chai, 2006; Min, 2006; Nguyen, 2017; Song & Usaha, 2009; Zhao, 2018). Additionally, the use of a well-designed writing rubric has been found to be a useful tool to help guide students’ assessments of their peer’s writing quality, as well as reduce the feeling that students are grading each other (Baker, 2016).

With the development of computer-assisted language learning (CALL) and computer-mediated communication (CMC) software, peer review has shifted from a traditional face-to-face environment to a networking, computer-mediated environment called computer-mediated peer review (CMPR) or online peer review. Online peer review allows students to share their writings, exchange their own ideas, and respond to each other through computers online in the asynchronous or synchronous form. The use of networked computers allows learners to access the writing environment more quickly and increase “the possibility of free communication, autonomous interaction, and collaborative ideas shared in small group discussion” (Song & Usaha, 2009, p. 264).

CMPR or online peer review is considered to have advantages over the traditional face-to-face peer review (FFPR) because it can be conducted anywhere and anytime with networked computers or tablets (Guardado & Shi, 2007). Further, it can reduce the influence of teacher authority in the traditional peer review, encourage students’

autonomous learning (Kern, 1995), and promote greater equal participation of members than face-to-face conferencing (Guardado & Shi, 2007). As a result, students are given spaces to practice their writing skills in this non- (or less-) threatening environment (Colomb & Stimutis, 1996; Guardado & Shi, 2007).

With these benefits, researchers have investigated the effect of online peer review on EFL university learners' writing quality, comments, subsequent revisions, attitudes, and affective benefits (Guardado & Shi, 2007; Liu & Sadler, 2003; Ho, 2015; Wu et al., 2015; Zheng et al., 2018). While many studies have focused on its effectiveness in a single mode (Guardado & Shi, 2007; Liou & Peng, 2009; Zheng, et al., 2018), several studies have focused on comparing CMPR and FFPR (Liu & Sadler, 2003; Song & Usaha, 2009). Researchers claim that each mode has its own advantages, and that cannot be replaced by the other (Liu & Sadler, 2003). Thus, they suggest that combining two modes of peer review (i.e., FFPR and CMPR) as a two-step peer review process works more effectively (Liu & Sadler, 2003; Ho, 2015). Little research has focused on blended peer review modes (Ho, 2015). However, findings of the different modes varied depending on factors such as learners' cultures and different types of CMC (i.e., synchronous and asynchronous) tools used for commenting and interaction.

Studies have shown that asynchronous conferencing (e.g., *Microsoft Word* commenting features, *Blackboard*, *Moodle's* Forum, *Weblog* postings) reduced interactivity due to the delay of interaction and the lack of nonverbal cues (Guardado & Shi, 2007; Ho, 2015; Liou & Peng, 2009; Liu & Sadler, 2003). This lack of interaction between reviewers and reviewees to clarify meanings and misunderstandings occurred during the peer review process, turned it into a one-way communication process and left

peer comments unaddressed (Guardado & Shi, 2007). Nevertheless, asynchronous feedback, particularly *Microsoft Word's* Track Changes and editing features, has been reported to be more serious and more effective regarding the quality of feedback and revisions (Ho, 2015; Liu & Sadler, 2003). This is because students learn to adjust verbal behaviors over time in order to reach similar interpersonal levels observed in synchronous chats (Walther, 1996).

Compared to asynchronous conferencing, synchronous discussion, such as instant chats in *OnlineMeeting* and *Moo*, allows peers to make real-time comments and encourages quick exchanges and personal involvement (Ho, 2015). Furthermore, it can help students provide more constructive feedback and specific directions for their peers' further revision (Ho, 2015). In addition, synchronous group discussion is an efficient way to clarify misunderstandings that occur during peer review (Wilson et al., 2015). Nonetheless, in their comparative studies, Liu and Sadler (2003) found that while engaged in *Moo* talk, students engaged in more off-task topics and conversations, made more non-revision-oriented comments, and appeared less focused on their work. Similarly, Ho (2015) found similar levels of off-task behaviors in some groups of the students in her study.

These research gaps remain despite the researchers' efforts to examine the impact of the two types of CMC in online peer review on EFL students' writing. Also, these gaps suggest that more investigation needs to be conducted in this area to shed more light on how technology shaped students' commenting and revisions behaviors as well as their affective domains (e.g., self-efficacy). Ho (2015) suggests that future research could explore various types of ICT programs/software (e.g., voice or video chat) during

different drafting processes inside or outside the classroom based on the given nature and constraints of different modes and software. Also, Wilson et al., (2015) suggested that synchronous group discussion is an efficient way to clarify misunderstandings that occurred during peer review. Additionally, researchers of all the peer review modes believe that students need to be given sufficient training to be able to provide quality feedback (Guardado & Shi, 2007; Ho, 2015; Liu & Sadler, 2003). Having adequate training “result in more positive affect such as high motivation [which leads to high self-efficacy] and a better effect (i.e., more comments, more revision-oriented comments, and more revisions)” (Liu & Sadler, 2003, p. 222).

Statement of the Problem

Writing is a major skill that EFL university students need to develop. In particular, research reports serious problems with the quality of Thai students’ writing (Dueraman, 2015; Nguyen, 2018). In Thailand, a shortage of qualified English writing teachers in pre-universities causes the incompatibilities between the well-written curriculum and the teaching of writing skills by the unqualified teachers (Dueraman, 2012, 2015). This shortage forces primary and secondary schools to hire non-English graduates to teach English instead of going without an English teacher altogether (Dueraman, 2015). Some of the teachers can only teach grammar and translation, but no writing activities because they cannot produce even a paragraph in English (Dueraman, 2015). This results in the poor quality of English language teaching in public schools in Thailand as a whole and seemed to be a cyclical chronic problem. This might have been the main reason why most Thai students cannot speak or even write a paragraph in

English although they study English in schools for more than a decade by the time they finish secondary schools.

Glass (2008) noted that the type of English writing students learn at universities in Thailand does not prepare them well enough for their future development. This is especially true for students in non-English majors. They do not receive instruction in writing, but only basic language courses that aim to teach “reading, vocabulary, grammar, and occasionally speaking and listening activities” (Dueraman, 2015, p. 100).

Furthermore, writing courses are generally made available for English majors only so they may begin to experience English writing. This resulted in a delay in writing development (Dueraman, 2015). One may wonder why English major graduates in education programs cannot produce a quality piece of text. This is because they begin to learn writing at a tertiary level. Like other skills in nature, it takes time for a person to acquire and master a new skill (i.e., writing). English education major students are commonly required to register for two writing courses in the program depending on each university’s own curriculum. This is not enough for them to be competent and confident in English writing. Additional practice is thus needed.

English major students’ writing problems becomes more serious when they need to apply for a job or want to pursue higher education. Most graduates struggle with writing a resume for job applications and a statement of purpose for degree applications. Some cannot write a scholarship letter, while some fail to pursue their dream of studying abroad because their English writing scores (e.g., TOEFL or IELTS) do not meet the criteria. Even worse, some of them become English teachers in primary and secondary schools, but do not know how to teach writing and cannot provide a meaningful writing

experience and corrective feedback to their students. Thai students' writing problems thus continues.

Since the root of the problems is the shortage of qualified English writing teachers in primary and secondary schools in Thailand, and it remains unchanged over the past decades, educators and researchers should focus their solution/development on producing pre-service teachers who are competent in English writing. In this sense, students majoring in English must be prepared in the writing of English (e.g., writing process, grammar, and vocabulary) and provided meaningful writing experiences by experienced writing teachers. These future teachers also need to learn how to teach writing and give constructive feedback to students and how to use technology to facilitate their instruction to become 21st century teachers. Most importantly, they must have self-confidence or self-efficacy in writing and the teaching of writing as EFL teachers. Interventions used to promote their writing skills must be practical strategies that can be easily integrated into the existing curriculum.

Studies showed that feedback from peers during CMPR could improve students' writing as well as increase their writing efficacy, an important factor in helping students succeed in academic learning (Hsia et al., 2016; Zheng et al., 2018). Min (2006) noted that "with extensive training inside and outside of class, trained peer review feedback can positively impact EFL students' revision types and quality of texts directly" (p. 118). However, little research has examined the effect of CMPR trainings using both a synchronous interaction mode outside of class on pre-service teachers' writing competence and studying perceptions toward their writing self-efficacy (Zheng et al., 2018). Also, Ho (2015) suggested that future research could explore various types of ICT

programs/software (e.g., voice or video chat) during different drafting processes inside or outside the classroom. As a result, in this current study, the researcher attempts to fill this gap by using synchronous video meetings (e.g., *Zoom*) and asynchronous commenting, editing, and tracking features (e.g., *Microsoft Word*). This study hopes to provide a meaningful online writing experience and peer review implementation to improve pre-service teachers' writing ability and their writing self-efficacy.

Research Questions

1. What are the qualitative effects of CMPR on Thai pre-service EFL teachers' writing abilities?
2. How does this preparation affect the way these pre-service EFL teachers revise their papers after the peer review process?
3. What are Thai pre-service EFL teachers' stated perspectives about CMPR and CMC as implemented in this study?
4. What are the effects of CMPR on Thai pre-service EFL teachers' writing self-efficacy?

Significance of the Study

The results of this study provide some insights into Thai EFL pre-service teachers' online experience as well as their views of the application of digital tools and resources for language learning and teaching. Additionally, these findings will help provide teacher preparation programs the necessary tools for future professional development and technology integration into their course curriculum. This could fill a gap in the research related to English writing instruction in EFL university classrooms.

Purpose of the Study

This current study aims to examine the effect of experiencing CMPR on pre-service EFL teachers' writing performance, their peer comments, their revision quality, their perceptions of CMPR, CMC features, and their writing self-efficacy.

Definitions of Terms

Computer-mediated Peer Review (CMPR)

This collaborative learning technique involves the online peer-review activities using a combined asynchronous *Microsoft Word's* Track Changes and Comments and synchronous *Zoom* interaction to improve pre-service EFL teachers' writing performance and writing self-efficacy.

Self-Efficacy

Self-efficacy refers to a learner's confidence in his/her abilities in English language writing before and after CMPR, not general self-confidence.

Computer-mediated Communication (CMC)

CMC refers to a combination of asynchronous *Microsoft Word's* Track Changes and Comments and synchronous *Zoom* interaction.

An Embedded Single Case Study

According to Yin (2009), the embedded single case study looks at a single case study involving more than one unit of analysis within the case. A single case study is a qualitative research method that studies a phenomenon in-depth and in its natural setting (Merriam, 2009; Patton, 2002; Stake, 2005; Yin, 2009).

The current embedded single case study refers to four pre-service EFL teachers who were given a new learning and writing experience using CMPR. These students were

chosen from a writing class of 34 students. They were also second-year English majors attending a four-year program at a public university in Northeastern Thailand who aspired to become English teachers after graduation. They were native speakers of Thai and learned English as a foreign language.

Delimitations

This study was limited to only one writing class at a public university in Northeastern Thailand. In addition, only four pre-service teachers who were second-year English majors attending a four-year English program in the Faculty of Education, or so-called teacher preparation program, participated. Furthermore, the participants were limited due to the nature of a case study.

Organization of the Remaining Chapters

The researcher organized this dissertation into five sections in addition to references and appendices. Following the introduction, Chapter Two provides theoretical frameworks (i.e., social constructivism theory, collaborative learning, multiliteracies lens, and self-efficacy theory) that guide this study, and a review of relevant literature regarding CMPR. Chapter Three describes the methodology of the study. Chapter Four includes results and findings, and Chapter Five presents a discussion of the results and limitations of the study, implications pertaining to educational practice and curriculum, and recommendations for future research.

CHAPTER II

Literature Review

CMPR has been recognized as an effective teaching approach to improve EFL students' writing and self-efficacy. The term CMPR has varied across writing studies such as online peer review, electronic peer feedback, electronic peer response, and web-based peer assessment. These terms have been used interchangeably among researchers in this field. CMPR is easily framed by the theories of social constructivism, collaborative learning, and multiliteracies. Likewise, self-efficacy is a well-known theory accepted among researchers and educators. CMPR is further informed by employing a multiliteracies lens.

Theoretical Frameworks

Social Constructivism Theory

CMPR is a collaborative learning process based on three major ideas from Vygotsky's (1978) Social Constructivism Theory: social interactions with others, interactions with the sign system, and scaffolding within the *zone of proximal development* (ZPD). The first key idea is that students' learning occurs through their social interactions with others, such as teachers and peers. Vygotsky (1978) viewed development as the transformation of social shared activities into internalized processes. The second major idea is that a learner's development depends on his or her interactions with the sign systems: a culture's oral and printed language. Lastly, the third key idea in Vygotsky's (1978) Social Constructivism is the scaffolding that teachers and peers provide to students during learning experiences within the ZPD. The ZPD is the set of knowledge or skills students cannot acquire on their own, but only with the help or

guidance of others (Vygotsky, 1978). Online peer review relates to Vygotsky's (1978) three ideas because it allows students to learn and improve their writing with appropriate support from their peers through social interactions online.

Collaborative Learning

CMPR is a type of collaborative learning and “a form of indirect teaching in which the teacher sets the problem and organizes students to work it out collaboratively” (Bruffee, 1984, p. 637). In peer review, students “learn to describe the organizational structure of a peer's paper, paraphrase it, and comment both on what seems well done and what the author might do to improve the work” (Bruffee, 1984, p. 638). The writing abilities of the peer reviewer and reviewee and the quality of their work were likely to improve when students received help from peers and peer-review activity itself (Bruffee, 1984). With the application of computer technology in writing instruction, peer review has shifted from a traditional face-to-face mode (i.e. FFPR) to an electronic mode (i.e. CMPR/CMC), allowing peers to communicate about their work through synchronous and asynchronous platforms.

Multiliteracies Lens

The multiliteracies or new literacies theory is a pedagogical approach that accepts and advocates a wide range of linguistic, cultural, communicative, and technological perspectives (Cope & Kalantzis, 2000; New London Group, 1996). It is one of the social learning lenses developed by the New London Group (1996). Multiliteracies encourages the use of technologies (e.g., software programs and communication channels) as instructional tools to increase students' learning abilities and their access to cultural and linguistic diversity (Cope & Kalantzis, 2000; New London Group, 1996). In 21st century

education, schools and teachers play a vital role in creating learning opportunities to use technology to better prepare students for a successful life in a globalized world. Schools must appropriately adapt to the increasing availability of instructional technologies (e.g., computers and the Internet) and make sure all students have an equal access to them. Importantly, teachers must integrate technologies into their teaching curriculum and be trained to effectively apply these tools. By using these technologies, teachers provide meaningful learning experiences that help students learn and use technologies better both inside and outside classrooms as digital natives (a term proposed by Prensky, 2001). This implies that classrooms and teaching approaches without the use of technology can result in a lack of cultural and linguistic diversity.

Self-Efficacy and Peer Review

Self-efficacy is a theory that has been well documented in the educational research literature. The theory of self-efficacy is a part of Bandura's (1986) social cognitive theory that views people as active agents who influence and are influenced by their environment. Bandura (1986) defined self-efficacy as "people's judgements of their capabilities to organize and execute courses of action required to attain designated types of performances" (p. 391). Self-efficacy beliefs determine individuals' behavior, how they feel and think about the world and themselves, and how they motivate themselves to complete certain tasks at a specific period within the specific context (Bandura, 1986; Pajares, 1996). Thus, self-efficacy beliefs play an influential role in human agency as well as their learning (Bandura, 1986).

Self-efficacy has been consistently found to be an essential factor on students' successful academic learning, and its beliefs can have beneficial or destructive impacts

on learners (Bandura, 1986; Pajares, 1996). Self-efficacy researchers recommended that teachers pay equal attention to both students' perceptions of competence and their actual competence because the former could predict students' motivation and future academic choices more accurately than the latter (Hackett & Betz, 1989). Students' self-efficacy beliefs should thus be operationalized and measured (Bandura, 1995, 1997). Importantly, teachers and schools should take them seriously and share their responsibility in nurturing the self-efficacy beliefs of their students to help them improve their competency and confidence as they progress through school (Pajares, 1996).

Self-efficacy is a key factor that leads to increased language learning success, particularly in writing (Pajares, 2003; Ruegg, 2018). The relationship between students' writing self-efficacy, other motivation constructs related to writing, and writing outcomes in educational settings has been well-described in Pajares's (2003) study. The author concluded that learners' self-efficacy in their writing capabilities affects their writing motivation and writing outcomes in schools and urged researchers to explore further. More recent literature conducted in L2 writing studies to investigate the effect of interventions such as FFPR and/or CMPR on students' writing achievement and changes in their writing self-efficacy (Liou & Peng, 2009; Ruegg, 2018; Zheng et al., 2018).

According to Bandura (1994), people's beliefs about their efficacy can be developed through the vicarious experiences provided by social models and social persuasion. When one sees people similar to themselves (i.e., peers) succeed by sustained effort, they, as observers, raise their beliefs that they too have what it takes to succeed (Bandura, 1994). Likewise, people who are persuaded verbally (e.g., praises) that they have potential to master given tasks tend to perform better (Bandura, 1994). In peer

review, when students see peers with the same/similar age have good writing skills, they seem to think they are capable to produce good work as well. Similarly, positive feedback from peers can motivate learners to perform assigned tasks better. In this sense, social models and social persuasion are a useful source of motivation and inspiration that students receive from peer review.

The findings of peer review on EFL learners' writing performance and self-efficacy have varied. In Ruegg's (2018) study, the author found that self-efficacy in students' writing skills increased significantly more in the teacher feedback alone group than the peer feedback alone group. However, the author noted that this finding may not be generalized because there are many other variables that influence self-efficacy. Conversely, Zheng et al.'s (2018) study found that synchronous discussions between peer reviewers and peer reviewees in web-based peer review improved undergraduate students' writing performance, especially content writing skills and their writing self-efficacy. In Liou and Peng's (2009) study, findings revealed that using weblogs in CMPR stimulated the students' interest in improving their writing, but not all of them felt confident about providing useful peer feedback. These researchers suggest that a greater amount of CMPR research needs to be conducted to explore its effectiveness on students' writing improvement and self-efficacy (Pajares, 1997; Ruegg, 2018). Thus, the present case study aimed to fill this gap. Also, the terms 'self-efficacy' and 'confidence' refer to a learner's confidence in his/her abilities in English language writing before and after the online peer review activities, not general self-confidence. These terms were used synonymously in this study.

In summary, this current study relies on the four lenses: social constructivism theory, collaborative learning, multiliteracies lens, and self-efficacy theory. CMPR relates to these lenses in that it gives the students a new learning and writing experience with appropriate support from their peers through online social interactions. The peer review process (e.g., providing feedback) allows students to read and compare their writing to their peers' work. This may change the students' self-efficacy and their English writing skills.

Computer-mediated Peer Review (CMPR)

With the development of computer-assisted language learning (CALL) and computer-mediated communication (CMC) software, CMPR has gained increasing attention among writing instructors and researchers for over a decade. CMPR is also called online peer review, electronic peer response (e-peer response), electronic peer feedback (e-peer feedback), or web-based peer assessment. For the sake of this study, all forms of electronic peer review will be referred to as CMPR. CMPR can be more beneficial than traditional FFPR because it is more accessible and can be used anywhere and anytime with networked computers or tablets (Guardado & Shi, 2007; Tsai & Liang, 2009).

A number of researchers have conducted studies that compared the effect of FFPR and CMPR (Ho, 2015; Liu & Sadler, 2003; Song & Usaha, 2009). Liu and Sadler (2003) investigated whether different modes of commenting and interaction (technology-enhanced versus traditional) gave rise to differences in the text area (global versus local), the type (evaluation, clarification, suggestion, and alteration) and the nature (revision-oriented versus non-revision-oriented) of comments provided by peer reviewers in L2

writing, as well as the impact the observed differences had on students' revisions. The participants were eight ESL students coming from different language backgrounds (i.e., eight different countries). The traditional peer review group ($N = 4$) made pen and paper-based comments followed by a face-to-face meeting in class to discuss those comments. On the other hand, the technology-enhanced group ($N = 4$) used electronic peer review to make comments on computers using *Microsoft Word* features and then communicating electronically via an online chatroom called *MOO* (Multi-user domain Object-Oriented). The study revealed that ESL students in the electronic peer review group produced a larger overall number of peer comments and a higher percentage of revision-oriented comments than those in the traditional group. This finding was supported by the result of Song and Usaha's (2009) study that the electronic peer review group (using *Moodle*) produced more revision-oriented comments and significantly outperformed the face-to-face group regarding writing quality.

However, it was found that face-to-face communication was more effective than synchronous *MOO* talk, which enabled learners to engage in off task topics and conversations. Liu and Sadler (2003) claimed this was in part because participants were from different countries, and the nonverbal communication feature was necessary in intercultural communication in this peer review setting. The authors noted that although students preferred *MOO* over *Microsoft Word* for commenting, *MOO* was not as effective as *Microsoft Word* when considering writing quality. Most students disliked *Microsoft Word's* features at the beginning of the study, but later found them to be quite useful. Finally, the researchers concluded that *Microsoft Word* editing in a CMPR mode should

be combined with FFPR to serve as a two-step procedure for effective peer review activities in L2 writing classrooms.

In response to Liu and Sadler's (2003) need, Ho (2015) examined how a two-step peer review procedure in two modes of interaction (CMPR versus FFPR) affected comment patterns, learners' revisions, and their perceptions toward peer feedback in an EFL writing course. The participants were an intact class of 13 students (one male and 12 females) at a Taiwanese university. The researcher used *OnlineMeeting*, software specifically designed for peer review activities with a split screen protocol and document sharing features and chat room functions. The results of the study showed that overall students provided more revision-oriented comments than non-revision-oriented ones among different writing tasks in either mode. Furthermore, there were significantly more global alteration comments and fewer local alteration comments in FFPR than CMPR. The participants reported that they liked comments through *Microsoft Word's* annotation features over handwritten comments. However, they felt face-to-face discussions to be more effective than online chat via *OnlineMeeting* because of the affordance of face-to-face talk such as immediacy and paralinguistic features, that cannot be easily replaced by electronic chat. The findings suggested that the balanced use of CMPR and FFPR writing activities is needed.

Another line of CMPR studies have been conducted in a single mode of communication (Guardado & Shi, 2007; Liou & Peng, 2009; Zheng et al., 2018). In Guardado and Shi's (2007) study, the researchers explored 22 Japanese ESL students' online peer feedback experience in a sheltered credit course at a western-Canadian university. The authors used Blackboard, a course management application that offers

features including synchronous chat, asynchronous electronic discussion boards, class/individual email tools, assignment drop boxes, and more. In this study, the electronic discussion board was employed. Then the authors analyzed the electronic feedback the participants received, revisions they made accordingly (using *Microsoft Word's* Compare and Merge Documents tool), and experiences they perceived through interviews. The findings revealed that CMPR offered a text-only environment that forces students to write balanced comments with an awareness of the audience's needs. The students reported mixed feelings of the online experiences. Some of them expressed little confidence in peer commenting while some were too shy to express and clarify meaning, turning online peer review into a one-way communication process. The study suggested that online peer feedback "is not a simple alternative to face-to-face feedback and needs to be organized carefully to maximize its positive effect" (Guardado & Shi, 2007, p. 458). To do this, students should be instructed or motivated to interact with anonymous reviewers because the anonymity could also discourage interaction, which was found in this study. Also, the research suggests that a face-to-face class discussion with teacher's guidance to clarify comments in question should be combined with CMPR to maximize the effect of online peer feedback.

Research suggests that it is necessary to educate students on how to do peer review and make them aware of what high quality revision entails. This preparation may help students become more willing to do peer review and improve the quality of the feedback (Baker, 2016; Berg, 1999; Min, 2006; Song & Usaha, 2009). Many students are hesitant to revise their paper after receiving feedback from their peers. If students receive low quality of feedback, they tend to ignore or rarely treat it seriously (Earls, 1987).

Therefore, teachers need to convince students that “good writing is well-revised writing” (Liu & Chai, 2006, p. 48).

Focusing on training effects of CMPR, Liou and Peng (2009) conducted a case study to fill the gap in the literature with regard to the peer-review-training effects on learners’ peer comments, their quality of revision, and their perceptions when writing with weblogs. The participants were 13 freshman English majors from an EFL writing class in a public university of an Asian country. They were native speakers of Mandarin-Chinese. Students were assigned to write four assignments. The writing cycle for each assignment lasted for three to four weeks. There was no peer-review-training for the first assignment and training occurred between each of the rest assignments. After the treatment of peer review training in the second and third writing assignments, students revised their drafts. Peer comments on the fourth assignment were then compared with those of the first assignment. It was found that learners’ peer comments became more revision-oriented (from 42.2% to 68.7%). Also, their revision success increased (from 67.8% to 91.8%). However, students’ adoption rate of peer comments was low, 48.9% for the first writing assignment and 47.7% for the fourth writing assignment. The authors noted that peer review training did not make the students more willing to adopt the peer comments to revise their drafts although the quality of the comments was enhanced. This finding did not support the results of Min’s (2006) study that students incorporated a significantly higher number of reviewers’ comments into revisions post face-to-face peer review training. Her research found that the students incorporated 90% of the total revisions done through FFPR after the peer-review-training. This might be concluded that different modes of peer review (FFPR versus CMPR) affect peer comments’ adoption

rate. However, both studies found that the number of quality-enhanced revisions was significantly higher than that before peer review training.

Liou and Peng (2009) pointed out that students' low adoption rate of peer comments in their study might be because students were new to peer review tasks. Thus, they did not know how useful their peer comments were in term of revision and how to improve their drafts using them. Finally, the researchers concluded that "if students continue to receive training on both English writing and peer review skills, the peer comments may be valued more by the receivers to adopt and know better how to improve their writing" (Liou & Peng, 2009, p. 522). During the training, students received thorough instructions and practices on how to provide constructive and revision-oriented feedback, how to use the blog function, and how to conduct successful peer reviews with teacher-designed handout, illustrations, and text samples. Also, computer skills were taught while students were working to minimize the effect of computer skills on the results of this study. Most of the students' writing activities were done in a computer laboratory, to which the researchers recommended teachers bring the students for a step-by-step demonstration and practice before the study. Although the students reported that blog-enhanced instruction stimulated their interest in enhancing their writing, not all of them felt confident providing useful peer feedback.

Zheng et al. (2018) found that online synchronous discussion between reviewers and reviewees can increase students' self-efficacy during peer review activities. In their study, the authors used a web-based peer assessment system, developed to facilitate synchronous discussion during peer review, to explore their effect on students' writing performance, the quality of feedback, meta-cognitive awareness, and self-efficacy. The

system enabled learners to upload their work, view others' work, evaluate peer's work based on related criteria, provide qualitative feedback, conduct synchronous discussion, and check the results. Also, the system provided scaffolding to guide students in their synchronous discussion. The participants were 64 undergraduate students from different majors in a university in China and were randomly assigned into either the experimental group or the control group. Both groups participated in CMPR after they were given 40 minutes to write an essay. After the first round of peer review, students in the experimental group conducted synchronous discussion through online chat via the web-based system while students in the control group did not conduct any synchronous discussion. Findings revealed that synchronous discussion between the reviewers and reviewees significantly improved students' writing performance, particularly content writing skills, the quality of affective and meta-cognitive feedback, meta-cognitive awareness, and self-efficacy. Focusing on self-efficacy, the ANCOVA result of self-efficacy showed that the experimental group outperformed the control group. In addition, there was a significant difference regarding self-efficacy between the two groups ($F = 10.32, p < 0.001$), showing that students' self-efficacy can be improved by synchronous discussion between reviewers and reviewees.

Regardless of peer review modes (CMPR versus FFPR, CMPR+FFPR, or CMPR alone), asynchronous *Microsoft Word* annotation features (i.e., commenting, editing, track changes, compare and merge documents) have been found to be effective tools in online peer review studies, but synchronous software (text-only) has been found to be less effective (Guardado & Shi, 2007; Ho, 2015; Liu & Sadler, 2003). For example, the findings of Liu and Sadler's (2003) and Ho's (2015) studies found asynchronous

Microsoft Word commenting useful, but synchronous *Moo* and *OnlineMeeting* were less effective on the quality of students' revisions. They recommended writing researchers combine *Microsoft Word* commenting with face-to-face discussion or draw on the strengths of the traditional mode. Furthermore, the researchers suggest that the balanced use of FFPR and CMPR could increase the effectiveness and efficiency of peer review in EFL/ESL writing classes because each mode had its advantages that cannot be replaced by the other mode. In addition, Liu and Sadler (2003, p. 221) suggest that "the use of electronic peer review may serve as an effective tool for the peer review and revision processes and be worthy of further exploration". Similarly, Ho (2015) recommended future research examine various types of ICT programs/software (e.g., voice or video chat) during different drafting processes inside or outside the classroom. The research may reveal how technology shapes students' self-efficacy and peer review strategies and behaviors.

Present Study

Taking the research gaps into consideration, the current study aimed to investigate the effect of CMPR on pre-service EFL teachers' writing performance, types of comments, revisions, perceptions of CMPR and CMC, and personal evaluation of writing self-efficacy. The CMPR in this study was conducted using a mix of asynchronous *Microsoft Word* annotation features (i.e., Track Changes and Comments) and synchronous *Zoom*, a web-based video conferencing software, for peer interaction and discussions. *Microsoft Word's* Track Changes and Comments allowed students to make, delete, and edit comments and track their changes on their peer's work. *Zoom* video conferencing allowed the peer reviewers and peer reviewees to share their screen,

discuss, and clarify their misunderstandings regarding comments and revisions occurred during peer review. The researcher used *Zoom* to draw on the strengths of the traditional face-to-face mode. Students could communicate and interact with their peers just like in face-to-face interactions.

Additionally, there has been little research that has examined the effect of 100% online peer review using video conferencing software such as *Zoom*. Most synchronous tools used in previous research were text only (Guardado & Shi, 2007; Ho, 2015; Liu & Sadler, 2003; Song & Usaha, 2009). This might be because the studies focused on the anonymity or blind peer review, and that students should be motivated to interact with anonymous reviewers just like professional writers. However, peer review activities in this study were not anonymous because the anonymity could also discourage interaction (Guardado & Shi, 2007). Students were told by the researcher that this study was a learning community where they had to open their mind to learn from others (i.e., peers) and respect each other. Using video conferencing tools such as *Zoom* in this study shed more light on how technology shapes EFL students' commenting and revision behaviors as well as their attitudes. Furthermore, this study was conducted during the COVID-19 pandemic. Most universities in Thailand and worldwide are being shifted and adjusting themselves to distance learning. The university in this study did not traditionally offer any online courses, so the students were not familiar with online instruction. This present study thus provided a meaningful online writing experience to them to learn how to use technology for educational purposes.

CHAPTER III

Methodology

The purpose of this qualitative case study was (a) to describe Thai pre-service EFL teachers' use of CMPR to improve their writing performance, their peer comments, and their revisions, (b) to explore perceptions of CMPR and CMC features of pre-service teachers, and (c) to study their sense of writing self-efficacy after the preparation. This chapter described the methodology of the research study including (a) study design, (b) sampling design, (c) population and participants, (d) procedures for implementation, (e) data collection methods, and (f) data analysis methods.

Study Design

The study employed an embedded single case study approach, which is one of the qualitative research methods that study a phenomenon in-depth and in its natural setting (Merriam, 2009; Patton, 2002; Stake, 2005; Yin, 2009). According to Yin (2009), the embedded single case study looks at a single case study involving more than one unit of analysis within the case. Miles and Huberman (1994, p. 25) noted that “the case is, in effect, your unit of analysis”. In this current study, the four students represented the single case study, and each individual student represented a unit within the case study. Then cross-case analysis was used as the second level of analysis to relate findings found in specific cases to those found in other cases. This is the most appropriate method to fully analyze each of the cases because it allows in-depth analysis of a common situation (Yin, 2009).

According to Yin (2009), case studies are the preferred method when *how* and *why* questions are being asked and when the issue/ phenomenon is being studied within a

real-life context, where the researcher cannot control the events. The use of the case study in this research was appropriate because it addresses Yin's (2009) rationale for a case study. First, this study sought to understand Thai pre-service EFL teachers' perceptions and their writing experiences with CMPR and CMC features. Therefore, the research questions for this study required an in-depth look at what the participants were doing and thinking. Once the researcher gathered those perceptions and experiences, the researcher then thoroughly explored the why and how. Second, the researcher worked with the students online several times per week outside of their traditional classroom. This natural setting gave an opportunity to see how students used CMPR and CMC features and how they fit into students' lives. Finally, the researcher was not able to control all of the events when conducting a case study such as the computer and internet issues that occurred during the study. The research questions that guided this study were as follows:

Research Questions

1. What are the qualitative effects of CMPR on Thai pre-service EFL teachers' writing abilities?
2. How does this preparation affect the way these pre-service EFL teachers revise their paper after the peer review process?
3. What are Thai pre-service EFL teachers' stated perspectives about CMPR and CMC as implemented in this study?
4. What are the effects of CMPR on Thai pre-service EFL teachers' writing self-efficacy?

This case study lasted six weeks (22 hours). It involved four pre-service teachers (i.e., second-year university students in a teacher prep program) and their writing

instructor who were chosen through a purposeful sampling. Data were collected from the students qualitatively and virtually from multiple sources via Zoom and encrypted emails. They were pre-and post-questionnaires of CMPR, CMC features, and writing self-efficacy, pre-and post-tests (students' first and second drafts), a writing rubric, a peer review sheet with a grammar checklist, and a semi-structured interview. Only interview data were collected from the instructor.

The pre-and post-questionnaire data were analyzed through Qualtrics. Their results were reported qualitatively to answer the research questions three and four. The number of students' pre-test and post-test writing revisions were analyzed through *Microsoft Word* Compare Documents. Then they were analyzed and categorized manually to see whether they were self or peer revisions. All written feedback or comments made by peers on each student's first drafts, the peer review sheets with a grammar checklist, and Zoom chats during CMPR were counted and analyzed manually by me as the researcher. All peer comments were then put in appropriate categories based on their areas (global or local) and nature (revision-oriented or non-revision oriented) of comments. The results of students' revisions and peer comment analysis were used to answer the research questions one and two. Finally, the online interviews of the students and their teacher that were digitally recorded were transcribed and emailed to them to confirm if they were accurate (i.e., member checking). Thematic analysis was used to analyze the interview data to uncover themes. I then used cross-case analysis to examine themes, similarities, and differences across cases to gain insights and new knowledge about the students' experiences and perceptions towards CMPR. Also, I used the instructor's perceptions towards his current writing course, the students' writing abilities,

and their prior experience with CMPR features. With regards to triangulation, I used member checking, thematic analysis, cross-case analysis, and peer debriefing from my colleague who was a doctoral student to increase trustworthiness of the findings. This was to get a deeper and better understanding of Thai pre-service EFL teachers' perceptions and their writing experiences with CMPR and CMC features.

Sampling Design

This qualitative case study used purposeful sampling, namely criterion sampling, to identify and select “information-rich cases whose study will illuminate the questions under the study” (Patton, 2002, p. 230). Criterion sampling is a purposeful sampling strategy or a “non-random sampling technique in which the researcher solicits persons with specific characteristics to participate” (Johnson & Christensen, 2014, p. 264). It allows researchers to pre-determine what characteristics the participants should have to qualify for their study. Pre-determined criteria not only inform researchers about the participants' experience with the topic of research interest, but they also provide detailed and generalizable information that are useful to the study (Palinkas et al., 2015).

When selecting the case, researchers need to create a “rationale for his or her purposeful sampling strategy for selecting the case and for gathering information about the case” (Creswell & Poth, 2018, p. 102). In this study, I created detailed inclusion criteria that all participants must meet. For students, the criteria for participation selection were: the student must (a) be a second-year English major attending a four-year English program in Faculty of Education at a university in Northeastern Thailand, (b) be a Thai native speaker, (c) learn English as a foreign language, (d) have enrolled in the university's elective course called Writing Techniques for the first semester of academic

year 2020-2021, (e) not have previous CMPR experience using *Zoom* and *Microsoft Word*'s Track Changes and Comments prior to the study, (f) be over the age of 18, (g) agree to be video recorded, and (h) be willing to participate in the study. For the teacher participant, inclusion criteria for participation selection were: the teacher must (a) be teaching the group of students in that semester, (b) be a Thai native speaker, (c) agree to be video recorded, and (d) be willing to participate in this study. Criterion sampling was considered appropriate for this study because it allowed me to specify characteristics of my participants to fit in the topic and purposes of this case study research.

Yin (2009) suggested that the sample participants should be selected explicitly to encompass instances in which the phenomena under the study are likely to be found. After the writing course instructor consented to participate in this study, he was asked to assist with identification of possible students for the study by speaking with all students in his writing class and explaining the proposed study to find students who fit the criteria. Upon receiving the names of all the students, I randomly chose four students to obtain more in-depth data for analysis.

Research Site/Context

The public university in this study is considered medium sized with a student population between 5,000 and 10,000 students. The university offers associate, bachelor's, master's, and doctoral degree programs, serving 4,992 students, and is located in a rural area in Northeastern Thailand. The university's staff is comprised of 304 faculty members and 164 supporting staff. The university does not offer any online courses, so the study was the students' first online learning experience.

Participants

Before I proposed my dissertation to the committee, I planned to recruit six students to participate in my study. After I proposed, my committee advised me to collect data from four students due to the nature of my case study and my plan to use multiple sources for data collection. Yin (2009) suggested that the multiple-case studies approach does not rely on the type of representative sampling logic used in survey research, so “the typical criteria regarding sample size are irrelevant” (p. 50). Some of the data collected were survey, so this idea was aligned to this study. Alternatively, sample size is determined by the number of cases required to reach saturation (Yin, 2009). Creswell (2002) also suggested that when conducting a case study, three to five participants are adequate in gathering data.

In this study, four (out of the 34) students from a writing class who met the inclusion criteria that I created, and their course writing instructor, at a public university in Northeastern Thailand were chosen. All students were female, native speakers of Thai and learned English as a foreign language. They were second-year English majors and had the same academic background (having taken the same academic courses in their first year). The students also enrolled in the university’s elective course called Writing Techniques (EFT 1202) for the first semester of academic year 2020-2021. All students also aspired to become English teachers after graduation. The participants of the study were pre-service teachers, but also students of the university, therefore the terms “pre-service teachers” and “students” were used interchangeably. Throughout the study, I only focused on four student participants and their course writing instructor (for interview only). This was due to the nature of case studies, which obtain more in-depth data from

less subjects. Pseudonyms were used when presenting the results to protect their privacy. The following names were given as pseudonyms to each participant to ensure anonymity throughout the paper: (a) Alice, (b) Betty, (c) Tara, (d) Nancy, and (e) Chai. The participant demographics can be seen in Table 1.

Table 1

The Participant Demographics

Participant	Name	Role	Gender	Age	Computer	Location
1	Alice	Student	Female	20	Laptop	Home/Dorm
2	Betty	Student	Female	20	Laptop	Home
3	Tara	Student	Female	20	Laptop	Dorm
4	Nancy	Student	Female	20	Laptop	Home/Dorm
5	Chai	Teacher	Male	38-39	Laptop	Home

Ethical Issues

This study was conducted 100% online during the first semester of the academic year 2020-2021. Prior to conducting the study, the researcher contacted the head of the English Program and sent a letter to the Dean of the Faculty of Education at the university in Thailand to obtain permission respectively. After permission was granted from the university, the researcher sought approval from Sam Houston State University's Institutional Review Board (IRB). The granted permission letter and the IRB approval can be found in Appendix A and B, respectively. Participation was voluntary, and students as well as their instructor, who chose to participate in the study, provided consent electronically. All participants were explicitly informed of the purpose and intent

of the study. To protect the identity of participants, all personal names and information were kept confidential with pseudonyms used in their place (Patton, 1990; Rubin & Rubin, 2005; Stake 2010). Data files, electronic and written, were kept in a locked, secure location.

Instrumentation

This study contained data from multiple sources including pre-and post-questionnaires of CMPR, CMC features, and writing self-efficacy, pre-tests and post-tests, a writing rubric, a peer review sheet, and a semi-structured interview. Two questionnaires of pre-service teachers' attitudes towards CMPR and CMC features were used in this study, as well as writing self-efficacy questionnaires adapted from Ruegg's (2018) pre-and post-treatment questionnaires. The questionnaires were considered appropriate because the questions were designed based on the ideas of Bandura (2006) and Pajares (1996), which are also described in Ruegg's (2018) study. Questions targeted the concept of self-efficacy and asked about factors that determine quality performance in the focused domain (i.e., writing). Also, the questions asked to evaluate students' capabilities as of *now*, not asking about the past or future, and were congruent with the holistic writing performance criteria with which students were assessed.

In this study, I followed the same concepts, and changes were made to make sure the questions fit the participants in the study. Nine questions were used to target the construct of writing self-efficacy: (1) *Now*, how well do you believe your writing accomplishes the purpose of the assignment when writing essays in English? (2) *Now*, how good do you believe you are at organizing the ideas when writing essays in English? (3) *Now*, how good do you believe you are at supporting each main idea when writing

essays in English? (4) *Now*, how well do you believe you use appropriate grammar when writing essays in English? (5) *Now*, how well do you believe your vocabulary is used when writing essays in English? (6) Overall, how good do you believe you are at writing essays in English *now*? (7). In this study, Information and Communication Technology (ICT) skills refer to the ability to use *Microsoft Word* features in computers (hardware), the internet (software), and *Zoom* as an online data sharing platform/video conference application. *Now*, how good do you believe your ICT skills are? (8) As a pre-service teacher, how important do you believe the use of ICT to facilitate English writing instruction is *now*? (9) *Now*, how good do you believe you are at providing feedback to peers' work or future students' work? The questionnaires also included questions that asked about students' perceptions towards CMPR and CMC features, which were developed by the researcher.

These modified questionnaires were validated by experts who were professors in the Literacy Program at Sam Houston State University. The researcher used Qualtrics, an online survey software, to create an online version of the questionnaires written in English and translated it into Thai so that the participants could select either language when completing the questionnaires.

Pre-Questionnaire

A pre-questionnaire was administered before the students started writing and online peer review activities. The pre-questionnaire consisted of four parts with 24 questions, which lasted about 10 minutes. The pre-questionnaire was adapted from Ruegg's (2018) 12-item pre-treatment questionnaire that focused on asking students their past experiences regarding writing instruction and feedback as well as their writing self-

efficacy. The first six questions asked about students' past experiences regarding writing instruction and feedback. Questions seven and eight asked about students' preferences relating to giving/receiving feedback regarding this study. Questions nine to 12 asked about their past writing experiences regarding the use of *Microsoft Word* and *Microsoft Word's* Track Changes and Comments. Questions 13 to 15 asked about students' past experiences regarding the use of *Zoom*, while question 16 asked about their confidence in the use of ICT. In this study, ICT refers to the ability to use the *Microsoft Word* features in computers (hardware), the internet (software), and *Zoom* as an online data sharing platform/video conference application. Question 17 asked about their belief concerning the importance of ICT in writing instruction as pre-service teachers. The final seven questions asked about their writing self-efficacy as pre-service EFL teachers based on the holistic criteria used to assess their writing performance in this study. The pre-questionnaire can be found in Appendix C.

Post-Questionnaire

A post-questionnaire was used at the end of the research project after all writing assignments were completed and all essays were graded and returned to the students. The post-questionnaire consisted of 48 questions in three sections: pre-service teachers' writing self-efficacy, perceptions of CMPR and peer feedback, and reactions to CMC features. It lasted about 15 minutes. The first nine questions asked pre-service teachers to evaluate their writing self-efficacy and were the same as the final nine questions in the pre-questionnaire. Questions 10 to 26 asked pre-service teachers for their perceptions of CMPR and peer feedback. The final 22 questions asked for their reactions to CMC features, which were asynchronous *Word* Track Changes and Comments, synchronous

Zoom interactions, and encrypted emails. The post-questionnaire was adapted from Ruegg's (2018) 11-item post-treatment questionnaires that focused on asking students their writing self-efficacy and their perceptions of peer review. The post-questionnaire can be found in Appendix D.

Pre-Tests and Post-Tests

Before the CMPR training, the researcher assigned the students to write a five-paragraph essay to answer the question, "How do you relax yourself during COVID-19?". After the CMPR training, students were assigned to write a final draft of this topic. Each student's first draft was used as pretest, and their final drafts were used as the posttest to investigate whether CMPR training had positive effects on the students' writing performance. The students' pre-tests and post-tests can be found in Appendix E.

Peer Review Sheet

The five-paragraph essay review sheet was used to guide students on how to provide revision-oriented feedback, when reviewing their peers' work. The peer review sheet included questions on the introduction and thesis statements, organization of the paper, use of topic sentences, idea development, textual evidence used in the paper, and grammar and vocabulary issues. Also, the peer review sheet was used when grading peers' work, using effective information provided in the writing rubric. This made the writing scores more reliable among students and reduced the lack of confidence that students felt when grading each other's work. The peer review sheet was adapted from Min's (2006) guidance sheet for reviewing multiple-paragraph essays. After reading the students' first drafts, I found many grammatical errors regarding capitalization, punctuation, and spelling. I was afraid they would overlook them when reviewing their

peer's work. I thus decided to add a grammar checklist at the end of/as a final part of the peer review sheet to guide the students. The grammar checklist was from my ninth-grade son's English class in which his instructor assigned students to self-check their drafts before submissions. I found the checklist extremely helpful to guide my son's writing and reduce his grammatical errors, and it could be useful for the EFL students when reviewing their peer's work in this study. I consulted with my dissertation chair, who advised me to provide proof of consent. Hence, I emailed my son's English instructor to request permission to use it in this study. The granted permission email and the peer review sheet can be found in Appendix F and G, respectively.

Writing Rubric

The participants' writing performance was evaluated by both peers and the researcher based on a writing rubric adapted from Ferris and Hedgcock's (2014) holistic scoring rubric for evaluating L2 essays. The quantitative rubric consists of holistic criteria; the text directly addresses the writing task, clearly exposes its purpose, presents solid supporting material that is explicitly connected to its purpose, and is logically organized with its coherence being marked by explicit transitions. The rubric also assesses choice of vocabulary, grammatical errors, and spelling and punctuation.

The participants could score from one to five points for each row of the rubric with a total possible score of 30. The writing rubric was used to guide students to score and give feedback to their peers more reliably, consistently, and concisely. This allowed the students as pre-service teachers to practice grading students' papers logically and consciously. The writing rubric can be found in Appendix H.

Training of CMPR

Peer review training was conducted online by the researcher via Zoom, the web-based video-conferencing software. Zoom has recently been a popular software among educators for hosting instructional online meetings, webinars, trainings, and workshops. Zoom allows users to host meetings and invite their target groups to join them using a meeting ID or password. Regarding online security, the users can set the privacy of their meetings by locking the meeting and making sure the encryption is on to protect data and prevent unauthorized access. During Zoom conferencing, the host can manage participants, share screen, chat with students, record video, and create breakout rooms for participants to work in pairs or smaller groups. When sharing screens, the users can annotate, chat, spotlight, and more. Furthermore, Zoom allows the host to create breakout rooms either manually, automatically (i.e., random pairing), or both, which is user-friendly. For teachers, these features are just like teaching in the traditional face-to-face classroom.

After receiving a list of participants, who met the criteria, and their email addresses from the writing teacher, the researcher used encrypted emails to communicate with the participants and send Zoom invitations, survey links, and instructional materials. Also, students were asked to send their drafts and additional inquiries via encrypted emails. This peer review training was conducted 100% online because the researcher and participants were in different countries; this study aimed to provide an online learning experience to the students.

A nine-hour training session (three hours per day) was conducted after the students submitted their first drafts. The training aimed to prepare the participants with

necessary knowledge and skills for the CMPR activity (i.e., reviewing peer's work using *Microsoft Word's* Track Changes and Comments and discussing peer feedback via Zoom conferencing). To gain these necessary skills, the students received instructions and practices of English writing, peer review, and computer skills to become more familiar with peer review tasks and the software.

To improve the students' writing skills, the students received instruction regarding writing process (i.e., prewriting techniques, drafting, and editing), functional language, essential grammar, types of sentences, and how to organize a five-paragraph essay, which was a product of the Writing Techniques course (EFT1202) the students were taking this semester. According to the course description, students will learn phrases, sentence structures, punctuation, paragraph structure, organization, sequences of contents, paragraph writing in various types through this course. Also, the instructions covered common errors frequently found in EFL students' writing and specific examples regarding organization, structure, and linguistic aspects to raise students' awareness of areas that need improvement.

To be able to review peers' work, the students received instruction on how to provide helpful and constructive feedback through essay samples and how to rate their peers' work using the peer review sheet grammar checklist and the writing rubric. This was to help students understand and become familiar with giving feedback, the checklist, and the writing rubric to be used collaboratively during CMPR. Also, benefits of teacher and peer review and the importance of practicing giving useful feedback as a future teacher were also provided to the students. This was to raise their awareness of providing feedback and gain confidence when grading or providing feedback to their future

students. Examples of good peer comments (i.e., revision-oriented comments) were also given to the students to help refine their suggestions for their peers.

To enhance their computer skills, the students received instructions on how to use *Zoom* features (e.g., built-in tools for screen sharing, video, and audio calls) and *Microsoft Word* annotation features (i.e., Track Changes and Comments). Finally, they practiced using knowledge and skills they learned with their peers in pairs through a writing example. The researcher visited each group as a facilitator and observer via Zoom breakout rooms. The outline of CMPR training can be seen in Table 2.

Table 2

The Outline of CMPR Training

Day	Duration	Activity (via <i>Zoom</i>)
1 Week 2	3 hours	<ul style="list-style-type: none"> - Review what students learned during the orientation and the prewriting activity: <ul style="list-style-type: none"> - how to use Zoom and its features - the prewriting strategies - the rules for CMPR - the aims and the overview of this research study - Give an overview of Day 1 activities - Understand the writing process and the writing cycle - Understand the five-paragraph essay structure and its components through essay samples and writing tips

(continued)

Day	Duration	Activity (via <i>Zoom</i>)
		<ul style="list-style-type: none"> - Teach students how to keep details together, write effective opening and closing paragraphs, and use transitional words through essay samples - Teach students the writing process (i.e., prewriting techniques, drafting, and editing), functional language, essential grammar, types of sentences, and how to write a five-paragraph essay with examples (+Q & A) - Raise students' awareness of giving and receiving feedback (i.e., teacher and peer) and its benefits through essay samples - Teach students to use <i>Word's</i> Comments and Zoom features (e.g., screensharing, annotates, and chats) and have each student take turns screensharing her <i>Word</i> document and using Comments while the others used Zoom annotates and chats simultaneously. - Teach students how to use the peer review sheet to guide when reviewing a five-paragraph essay and how to use <i>Word's</i> Track Changes and Comments through an essay sample. - Have students read two versions of the same IELTS essay (good VS great) to learn some expressions and sentence structures from the high scoring essay

(continued)

Day	Duration	Activity (via <i>Zoom</i>)
		<p>(Good: medium score- Band 5-6, Great: high score-Band 8-9</p> <p>-Assign students to review the good and great essays using <i>Word's</i> Comments, find out which essay was good and great and why the great version is superior to the good one, and use the peer review sheet to check both essays</p>
2	3 hours	<ul style="list-style-type: none"> - Review what students learned in Day 1 - Have each student take turns screensharing their completed assignments (i.e., the review good and great essays and the completed peer review sheet with comments) to learn from each other's work - Have students reflect on their comments, their use of the peer review sheet, and the use of <i>Word's</i> Comments via <i>Zoom</i> - Raise students' awareness of writing areas that need improvement through common errors frequently found in EFL students' writings and specific examples regarding organization, structure, and linguistic aspects. - Review/teach students basic grammar knowledge (e.g., parts of speech, sentence structures, and punctuations) with exercises - Teach students how to use the grammar checklist, a final part of the peer review sheet

(continued)

Day	Duration	Activity (via <i>Zoom</i>)
3	3 hours	<ul style="list-style-type: none"> -Review what students learned in Day 2 -Teach students how to use <i>Word</i>'s Track Changes through a reviewed writing sample to show students how to start and stop tracking and how to accept and reject comments -Teach students how to use the holistic scoring rubric to rate their peers' work -Understand the benefits of peer feedback for teachers and learners by referring to previous research findings -Teach students how to provide constructive and meaningful peer feedback (i.e., revision-oriented comments) to their peers' essays through a writing example - Teach students the steps of CMPR and summarize all required documents for doing CMPR (i.e., an essay, the peer review sheet grammar checklist, and the writing rubric) -Have all students practice together commenting on a free IELTS essay sample that answers the question "what factors are related to academic success in high school students?" - Have students practice CMPR in pairs by reviewing the same essay sample individually using <i>Word</i>' Track Changes and Comments (30 mins), sending the reviewed work back to peer

(continued)

Day	Duration	Activity (via <i>Zoom</i>)
		<p>to read via Zoom chat (10 mins), and taking turns discussing peer feedback via Zoom's breakout rooms to clarify misunderstandings (15 mins)</p> <p>-Have students reflect on their first time using all features needed for CMPR to review peer's work (i.e., the essay sample), the peer review sheet, the grammar checklist, and the writing rubric (i.e., what score they gave to the paper and why?)</p>

Semi-structured Interview

An interview is a social interaction based on a conversation (Rubin & Rubin, 2012). It is where "knowledge is constructed in the interaction between the interviewer and the interviewee" (Brickmann & Kvale, 2015, p. 4). Bodgan and Biklen (2006) categorize interviewing as "a purposeful conversation that is directed by one in order to get information from another" (p. 93). Brinkmann and Kvale (2015) define the qualitative research interview as seeking to understand the meanings of the interviewees' perceptions towards their life experiences. Yin (2014) recommends interviews as one of six forms of data collection for case studies, the research method that require multiple forms of data collection to build an in-depth picture of the case. Creswell (2009) suggests that semi-structure interview with open-ended and closed-ended questions provides beneficial qualitative data. Essentially, good interview questions should be neutral, non-leading, and non-suggestive (Lapan et al., 2011). Interviewing, particularly one-on-one interviews, allows the researcher to control the questioning (Creswell, 2009). Qualitative

data collection via computer-mediated or web-based interviews (e.g., videoconferencing and text-based chatting) has advantages of cost and time efficiency regarding reduced costs for travel and data transcription (Creswell & Poth, 2018).

In this current study, I used the semi-structured interview to elicit data regarding perceptions of pre-service EFL teachers (i.e., the four students) towards CMPR and CMC features, as implemented in this study, as well as their writing self-efficacy. My dissertation committee suggested that I should also interview the participants' writing instructor because the students might talk to him about the CMPR. I agreed with my committee. Also, I wanted to ask his opinion about the students' writing ability, the writing course description, what type of instruction and feedback he provided, and his teaching experience in this writing course. This was to help me understand the cases better. Thus, the writing instructor was included in this study. I conducted five one-on-one, online interviews with all participants via *Zoom*. The interviews were approximately 30 minutes in length and were recorded and documented via *Zoom* in-house recording. This computer-based or web-based digital recording device assisted me in documenting participants' responses and dialogue. All digital recordings were transcribed into a *Microsoft Word* document for later analysis. Silverman and Marvasti (2008) suggest that confidence in data existence increase with the use of analysis of computer-assisted recording.

In this study, I played the role of a research interviewer to the four students and their writing instructor. I developed questions to guide me during the interviews. The open-and closed-ended questions were reviewed by Dr. Patricia Durham and Dr. Debra Price, my dissertation committee, professors at Sam Houston State University. I was

suggested to craft stronger questions that utilized descriptive interview techniques such as Grand Tours and the subtypes of Grand Tours (e.g., mini, specific, task -related). This allowed for a longer response to get rich data from the interviews. I revised my interview questions accordingly and had the committee confirm its workability/effectiveness. Ten interview questions for the student interviews, and another ten questions for the teacher interview were used to guide me. The interviews allowed me to obtain pertinent information on the perceptions of pre-service EFL teachers regarding the use of CMPR and CMC features, and their writing self-efficacy. The interview guide for the students and the teacher can be found in Appendix I and J, respectively.

Procedure

The present study was initially planned to conduct during the first semester (16 weeks) of academic year 2020-2021 and last 22 hours or about eight weeks. Unfortunately, the university in Thailand started this semester late and was on and off after that due to COVID-19. This resulted in the time constraint all instructors faced in managing to finish their courses on time, which could delay the participant recruitment process for my study. I discussed my concern with my dissertation chair, and we came to the conclusion that the study could be conducted at the end of that semester and would not affect the course instructor because the data would be collected online. Therefore, I decided to conduct this study at the end of that first semester right after the students' final examinations. The study was conducted intensively and lasted 22 hours for about five weeks. After I received the IRB approval to conduct this study on November 2nd, 2020, I began to recruit participants for this study. The detailed participant recruitment can be

seen in the sampling design and the participants sections in this Chapter. After all participants provided consent electronically via encrypted emails, this study began.

During week one of the study, the pre-survey link and the proposed calendar was sent to all students via an encrypted email. They were asked to complete the online pre-questionnaire and give me their availability (i.e., exact dates and time) that they were able to participate in each activity (i.e., in pairs and in a whole group) of this research. The finalized calendar can be seen in Appendix J.

During week two, the students participated in a participant orientation, the prewriting activity (i.e., the first step of the writing cycle), and the nine-hour CMPR training via Zoom. During the orientation, I taught the participants how to use Zoom and its features (e.g., screensharing, annotate tools, chat) step by step and had them practice using the features together to be familiar with this new online environment. Then I provided students the rules for this CMPR learning community (i.e., the Dos and Don'ts) that I created for successful learning. I followed Ho's (2015) suggestion that "for a better review outcome, teachers should adopt ways of monitoring students' computer-mediated interaction to reduce possible off-task discussions and to avoid students engaging in irrelevant online activities while doing CMPR" (p. 13). The students were asked whether they agreed with the rules or wanted to make changes so that we had a mutual agreement and followed the rules inevitably throughout the study. The purposes and the overview of this CMPR study were then provided. Issues regarding English writing instruction in Thailand and providing written corrective feedback by teachers and peers, as well as benefits of teacher feedback, peer feedback, and CMPR were also presented.

This was to raise the participants' awareness of improving English writing and providing feedback as future writing teachers.

During the prewriting activity, basic knowledge of the writing process and the writing cycle used in this study, the five-paragraph essay structure, and the Modern Language Association (MLA) format were provided. Also, prewriting strategies and tips were taught to the participants with exercises. This was to prepare them with the essential knowledge of prewriting before they started to write their first draft, which was the second step of the writing cycle. All teaching materials presented to the class were emailed to the participants after each meeting ended. Finally, the participants were assigned to write a five-paragraph essay to answer the question 'How do you relax yourself during COVID-19?' (about 400 words) and submit their first or rough draft via email. These drafts were used as the pre-tests in this study. After they were submitted, the nine-hour CMPR training began. The detailed description of the training can be seen in the training of CMPR section in this Chapter.

After the training, in Week 3, the participants were assigned homework to review and give feedback on their peer's first draft using *Microsoft Word's* Track Changes and Comments, as they practiced during the training. The participants were randomly paired and ended up with having the same partner (i.e., Alice and Betty, Tara and Nancy) as in the training. Both pairs were satisfied with their partner because they were already familiar with one another. To do peer review, each student was asked to exchange her work with her partner via email, so that she could review it individually before discussing feedback with her peer via Zoom. When reviewing the peer's work, the students were asked to use the peer review sheet and the grammar checklist to guide them. They were

also encouraged to make comments on the peer's first draft, the peer review sheet, and the grammar checklist (optional). As pre-service teachers, the participants were asked to grade their peer's work using the writing rubric just like they did during the training to practice their grading skills. The received scores were not used for the data collection and analysis in this study.

After the students finished reviewing their peer's work using *Microsoft Word* Comments, they were asked to discuss their feedback via Zoom to clarify any misunderstandings regarding feedback. At this point, breakout rooms were not used as in the training because I wanted to focus on one pair a time without distractions and videorecord a whole meeting of each pair separately. Therefore, each pair was asked to schedule an appointment with me to observe her feedback discussion. Each pair had two hours (60 mins/student) to finish the peer discussion activity. During this activity, the students took turns sharing their feedback and comments made on their peer's work and discussing them. The reviewer shared her peer's work with her written feedback and comments and had her read through them. The student writer could ask the reviewer to clarify points she did not understand or argue with corrections or feedback that she did not agree with. This allowed the students to exchange their knowledge and learn from one another. At this point, my roles were only a moderator and observer, so no help with feedback were given to the students.

Next, all students were asked to revise their drafts and submit the second draft (i.e., the post-tests) via email. I suggested that the students read their peer feedback carefully and decide whether to use it for their revisions. They may or may not use the peer feedback for their revisions. They were also allowed to use the instructional

materials/ teaching documents received during the training or from other sources to help them write their second draft. After the students submitted their second drafts, they were asked to schedule a 30-minute one-on-one conference with me to discuss with them about their feedback given to their peer and how to refine their comments, so that they were more understandable to the writers. Also, I gave feedback regarding areas the students needed to improve/work more on their second drafts. Finally, all students were asked to revise their second drafts and submit their final drafts, which were graded by me using the writing rubric.

In this study, I adopted a writing cycle modified from Min's (2006) and Ho's (2015) studies. The whole cycle was sequenced as seen in Figure 1: brainstorming/pre-writing tasks, writing the first draft, CMPR activity, writing second draft, researcher-writer conference, and writing the final draft. The cycle lasted about two weeks and consisted of writing three drafts with revisions in between based on peer comments. The post-questionnaire was administered to all participants after they submitted their final draft. In addition, all participants participated in a 30-min interview. The overview of the research study can be found in Figure 2. A more detailed breakdown of the research study can be seen in Appendix F on the finalized calendar.

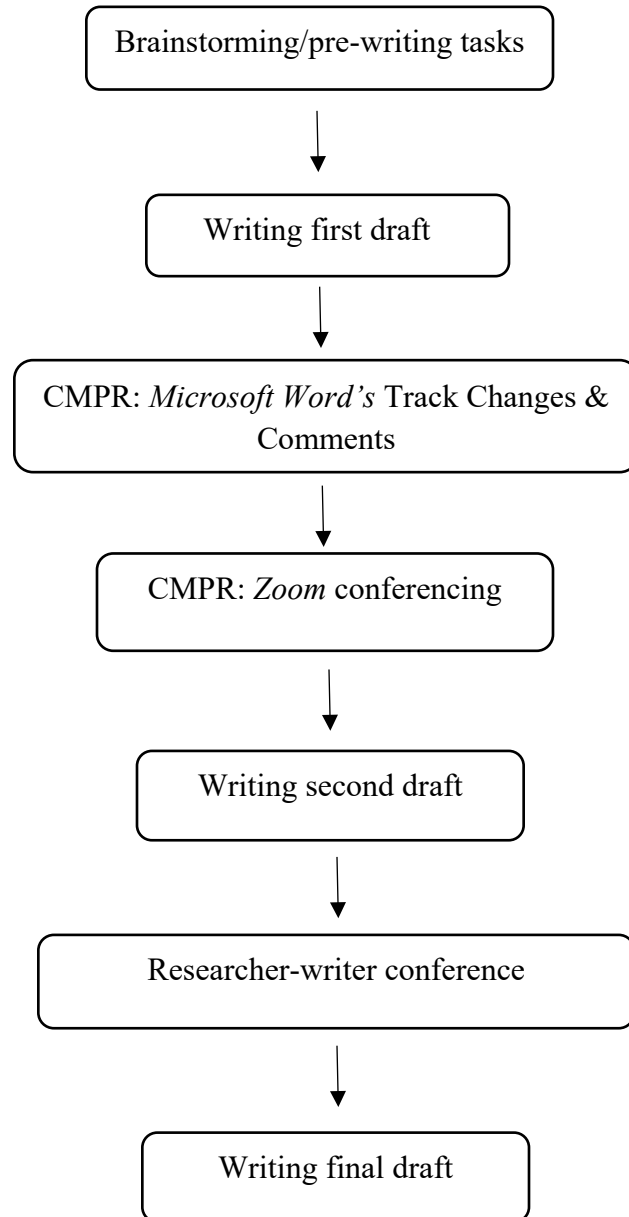
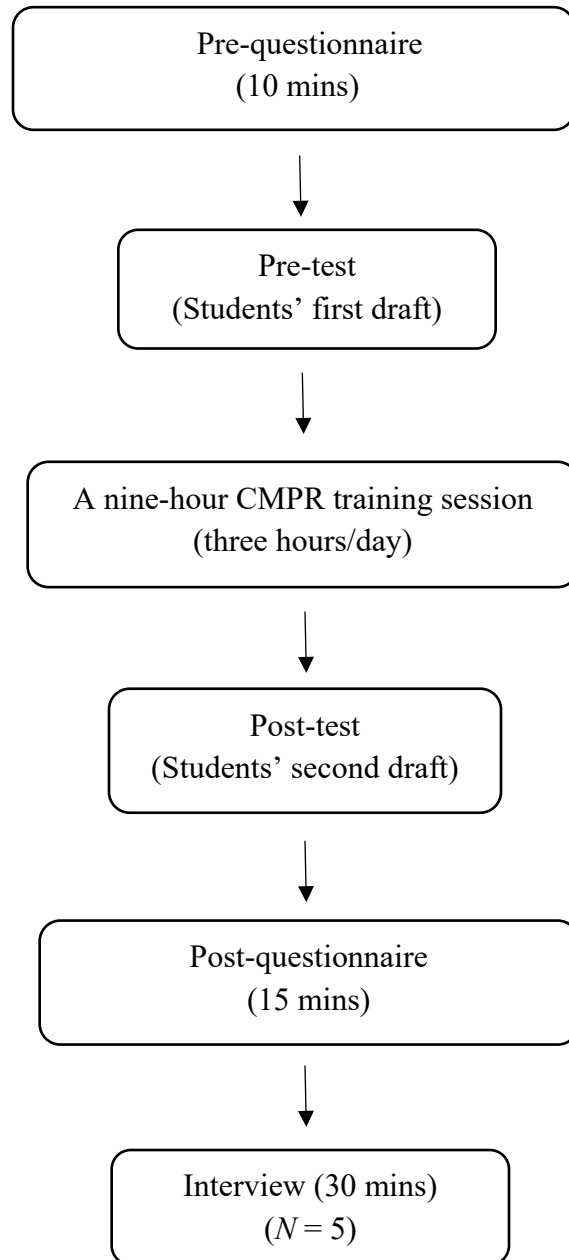
Figure 1*The Writing Cycle*

Figure 2*The Overview of the Research Study*

Data Collection

When conducting a qualitative study, the researcher is the main instrument collecting the data (Denzin & Lincoln, 2005; Onwuegbuzie, et.al., 2008). In this case study research, qualitative data were collected. They included pre-and post-questionnaires, pre-test and post-test writing revisions, peer feedback, student interviews, and a teacher interview. After the four students and their writing instructor provided their consent to participate in this study, the data collection began.

The questionnaire data were collected anonymously through the Qualtrics Survey Platform and stored using pseudonyms on my password-protected computer to protect the identity of individual participants. All activities occurred online via Zoom (i.e., the orientation and prewriting activity, the CMPR training, the CMPR activity, and the interviews) and were video recorded and documented via Zoom in-house recording with password protection. Additionally, I used my password protected iPhone for audio recordings for the interviews in case Zoom failed during the interview. The video-recorded data were stored on my password protected computer. The interviews were erased from the recording devices once they were stored on the password-protected computer. The students' pre-test and post-test writing revision data and peer feedback data were also collected and stored on the password-protected computer and/or kept in a locked file cabinet in my office. All participants received pseudonyms, and confidentiality was maintained throughout the data collection process.

Data Analysis

The analysis and interpretation of data focused on the students use of peer feedback to revise their first draft to understand how CMPR affected their writing ability.

Students' first and second drafts were compared to collect the number of revisions on the revised first drafts through *Microsoft Word's Compare and Merge Documents* tool, which highlights additions and deletions. Revisions were counted, analyzed, and categorized manually to determine if they were self or peer revisions.

The analysis and interpretation of data also focused on how the comments from the peer reviews (i.e., CMPR) were distributed in both global and local areas. Global feedback refers to "idea development, audience and purpose, and organization of writing," while local feedback refers to editing issues such as "wording, grammar, and punctuation" (McGroarty & Zhu, 1997, p. 14). Additionally, the nature of the students' comments was categorized into revision-oriented and non-revision-oriented (Liu & Sadler, 2003). This categorization was used to observe the effectiveness of CMPR training in increasing the number of peer revision-oriented comments.

All comments made by peers on each student's first drafts, the peer review sheets, and the grammar checklist were counted and analyzed manually. Afterwards, they were placed in appropriate categories, areas (global or local) and nature (revision-oriented or non-revision oriented). All peer comments were inserted into the analysis grid adapted from Liu and Sadler (2003) and counted manually by me for each section of the grid.

Next, the pre-and post-questionnaire data were analyzed through the Qualtrics Survey Platform. The results gained from this analysis were presented qualitatively. The students' responses to the questionnaires allowed me to understand their perceptions towards the use of CMPR and CMC features and learn whether their writing self-efficacy increased after this CMPR writing experience.

Finally, the recorded online interviews of the students and their teacher were transcribed and emailed to them to confirm transcription accuracy (i.e., member checking). Thematic analysis was used to analyze the interview data to uncover themes. I then used cross-case analysis to examine themes, similarities, and differences to gain insights and new knowledge about the students' experiences and perceptions towards CMPR. Also, I used the instructor's perceptions towards his current writing course, the students' writing abilities, and their use of CMPR. Throughout the study, I kept a reflexive journal to explore my own thoughts and observations about the participants' perceptions of CMPR, the CMC tools, and their writing self-efficacy (Janesick, 1998; Lincoln & Guba, 1985).

Establishing Trustworthiness

Lincoln and Guba (1985) stated that trustworthiness was established when research findings closely mirrored the meanings as described by the participants. They suggested several procedures for credibility (i.e., internal validity) such as triangulation, member checking, and peer debriefing. With regards to triangulation, I used different types of data (i.e., pre-and post-questionnaires, pre-test and post-test writing revisions, peer feedback/comments, student interviews, and a teacher interview) to increase confidence and understanding of the findings. I also used different types of data analysis for the interview data (i.e., thematic analysis, case-by-case analysis, cross-case analysis, member checking, and peer debriefing from my colleague) to increase credibility and gain a better understanding of Thai pre-service EFL teachers' perceptions towards their experiences using CMPR and CMC features as implemented in this study and their writing self-efficacy afterwards. To enable transferability of qualitative findings (i.e.,

external validity and generalizability) to be applied to other situations and settings, I used Lincoln and Guba's (1985) strategy of thick description by providing detailed description in every stage of my study, defined as "everything that a reader may need to know in order to understand the findings" (p. 125). To establish confirmability, I used a reflexive journal to record my own thoughts and observations about the participants' perceptions of CMPR, the CMC tools, and their writing self-efficacy (Janesick, 1998; Lincoln & Guba, 1985)

Researcher Bias

As the researcher, I served as the primary instrument for data collection and analysis (Denzin & Lincoln, 2005; Janesick, 1998; Lincoln & Guba, 1985; Onwuegbuzie, et.al., 2008). Thus, there might be a chance that my preconceived ideas could impact or influence the study's result caused by either mine or the participants' actions during data collection and throughout the analysis stages (Onwuegbuzie, et.al., 2008). To separate from this bias, I conducted member checks for the interview transcripts with my participants (Lincoln & Guba, 1985) to ensure my beliefs did not influence the participants. Furthermore, my previous translation experience teaching translation courses for EFL college undergraduates in Thailand ensured my translations of the interviews were accurate and valid. Additionally, I asked for assistance from my Thai colleague to administer a peer debriefing with questions regarding my interviews to ensure that my data collection methods were valid, reliable, and trustworthy. Peer debriefing allowed my colleague to review and assess the transcripts, my translations, and final themes that emerged from the coding process. Therefore, the methods above were used to remove bias from the study. In addition, in the past years, I conducted quasi-

experimental research to investigate the effects of peer review on EFL college students' writing ability under the supervision of Dr. Chase Young. Additionally, I conducted a qualitative content analysis study to view peer review in EFL college writing classes through the Multiliteracies Lens under the supervision of Dr. Patricia Durham. My previous research experiences with peer review studies did not affect findings in this study due to the use of different research focuses and methodologies. Instead, I was able to conduct this study efficiently due to having background knowledge and experience with this topic.

Confirmation Bias

I spent time reflecting in my journal to exclude confirmation bias, the process a qualitative researcher might analyze and interpret new data with set beliefs about the research topic (Onwuegbuzie, et.al., 2008). Janesick (1998) stated that this type of reflection process reduced confirmation bias.

Summary

In this chapter, I presented the methodology of the research study including study design, sampling design, population and participants, procedures for implementation, data collection methods, data analysis methods, establishing trustworthiness, researcher bias, and confirmation bias. In Chapter IV, the findings from the analyses of qualitative data will be addressed.

CHAPTER IV

Data Analysis

The previous chapter presented the research design and methodology procedures. In this chapter, the findings from the analyses of qualitative data are presented. This qualitative case study was designed to describe the four selected Thai pre-service EFL teachers' use of CMPR to improve their writing ability, their peer feedback/comments, and their revisions. Also, this study was completed to explore perceptions of CMPR and CMC features of pre-service teachers and study their sense of writing self-efficacy after the preparation. In Chapter IV, I detailed the procedures that I followed during the process of data collection and analysis of the findings that emerged from pre-and post-questionnaires, pre-test and post-test writing revisions, peer comments, and interviews. Findings were later used to answer the following research questions that guided this study:

- (1) What are the qualitative effects of CMPR on Thai pre-service EFL teachers' writing abilities?
- (2) How does this preparation affect the way these pre-service EFL teachers revise their papers after the peer review process?
- (3) What are Thai pre-service EFL teachers' stated perspectives about CMPR and CMC as implemented in this study?
- (4) What are the effects of CMPR on Thai pre-service EFL teachers' writing self-efficacy?

Pre-Questionnaire Results

The pre-questionnaire data provided background information of the four participants (i.e., pre-service teachers). The data were anonymously collected at the beginning of the study prior to the CMPR activity. The data included all participants' responses to the questions about their experience with writing instruction, feedback, and preferences related to giving and receiving feedback. The data also included participants' responses to the questions about their writing experience using *Microsoft Word*, *Microsoft Word's* Track Changes and Comments, Zoom, and their writing self-efficacy as pre-service teachers. The pre-questionnaire data were analyzed through the Qualtrics Survey Platform. The findings will be discussed in the following paragraphs.

Previous Experience with Writing Instruction and Feedback

According to the pre-questionnaire results, all participants learned to write essays in Thai (Q1), but their experience regarding giving and/or receiving feedback varied. When asked how often they received teacher feedback when writing essays in Thai (Q2), only one participant received teacher feedback on every Thai essay. Another participant received feedback once or twice while two participants never received teacher feedback. These responses were similar regarding how often they gave and/or received peer feedback when writing essays in Thai (Q3). One participant received and gave peer feedback on every Thai essay, another participant gave and received feedback once or twice, and two participants never gave or received peer feedback when writing essays in Thai. Unlike their experience writing in Thai, the participants had less English writing opportunities. When asked if they learned to write essays in English, only one participant indicated having been taught to write essays in English (Q4) but never received teacher

feedback nor gave or received peer feedback (Q5-6). Three participants never learned to write nor had feedback experience. Participants' previous writing experiences and frequency of teacher and peer feedback experiences can be seen in Tables 3 and 4.

Table 3

Previous Writing Experience Items with Percentages of Students Selecting Each

Alternative (n = 4)

Survey Question	Yes	No
1. Did you ever learn to write essays in Thai?	4 (100%)	0 (0%)
4. Did you ever learn to write essays in English?	1 (25%)	3 (75%)

Table 4

Frequency of Previous Feedback Experience Items with Percentages of Students

Selecting Each Alternative (n = 4)

Survey Question	Never	Once/Twice	Often	Every Essay
2. How often did you receive teacher feedback in Thai essays?	2 (50%)	1 (25%)	0 (0%)	1 (25%)
3. How often did you give and/or receive peer feedback in Thai essays?	2 (50%)	1 (25%)	0 (0%)	1 (25%)
5. How often did you receive teacher feedback in English essays?	0 (0%)	0 (0%)	0 (0%)	0 (0%)
6. How often did you give and/or receive peer feedback in English essay?	0 (0%)	0 (0%)	0 (0%)	0 (0%)

Preferences Relating to Giving/Receiving Feedback

Regarding their preferences related to giving and receiving feedback, all participants reported that they would like to practice giving and receiving peer feedback on every essay during this current English writing course (Q7). During this course, they would like to receive teacher feedback on every essay as well (Q8).

Previous Writing Experiences Regarding the Use of Microsoft Word, Microsoft Word's Track Changes and Comments, and Zoom

When asked about their previous writing experiences regarding the use of *Microsoft Word*, *Microsoft Word's* Track Changes and Comments, and Zoom, three participants indicated that they used *Microsoft Word* to write essays in Thai, but they never used *Microsoft Word's* Track Changes and Comments to initiate and receive comments. When writing essays in Thai, one participant reported no writing experience using *Microsoft Word's* Track Changes and Comments and the software program's useful functions (Q9-10). When writing essays in English, two participants indicated that they used *Microsoft Word*, but never used Track Changes and Comments to initiate or receive comments. Two participants never used *Microsoft Word* and the software program's features to write English essays prior to this study (Q11-12). In Zoom discussions, three participants reported they had participated once or twice before this study, but never used Zoom to discuss neither their Thai nor English essays. One participant never participated in Zoom discussions (Q13-15). Participants' previous writing experiences regarding the use of *Microsoft Word*, *Microsoft Word's* Track Changes and Comments, and Zoom can be seen in Tables 5 and 6.

Table 5

Previous Writing Experiences Regarding the Use of Microsoft Word, Microsoft Word's Track Changes and Comments, and Zoom Items with Percentages of Students Selecting Each Alternative (n = 4)

Survey Question	Yes	No
9. Did you ever use <i>Microsoft Word</i> to write essays in Thai?	3 (75%)	1 (25%)
11. Did you ever use <i>Microsoft Word</i> to write essays in English?	2 (50%)	2 (50%)
13. Did you ever use Zoom?	3 (75%)	1 (25%)

Table 6

Frequency of Writing Experiences Regarding the Use of Microsoft Word, Microsoft Word's Track Changes and Comments, and Zoom Items with Percentages of Students Selecting Each Alternative (n = 4)

Survey Question	Never	Once/ Twice	Often	Every Essay
10. When you wrote essays in Thai, how often did you use <i>Microsoft Word's</i> Track Changes and Comments to make and receive comments?	4 (100%)	0 (0%)	0 (0%)	0 (0%)
12. When you wrote essays in English, how often did you use <i>Microsoft Word's</i> Track Changes and Comments to make or receive comments?	4 (100%)	0 (0%)	0 (0%)	0 (0%)
14. How often did you use Zoom to discuss your Thai essays?	4 (100%)	0 (0%)	0 (0%)	0 (0%)
15. How often did you use Zoom to discuss your English essays?	4 (100%)	0 (0%)	0 (0%)	0 (0%)

Pre-Service Teachers' Writing Self-Efficacy

Students' responses regarding their writing self-efficacy before the CMPR activity varied. When asked how proficient participants were when using ICT skills during this CMPR study, one participant stated her ICT skills were moderate, two participants stated they were slightly good, and one participant revealed her ICT skills were not good (Q16). All participants had strong opinions towards the use of ICT to facilitate English writing instruction as a pre-service teacher. One participant acknowledged the use of ICT was extremely important, whereas three participants stated the use of ICT was very important (Q17). Two participants concurred they were moderately good at providing feedback to peers' or future students' work, and two participants stated they were slightly good at providing feedback (Q18).

All participants reported they were slightly good at writing essays in English overall (Q19). When writing essays in English, they indicated their writing accomplished the purpose of the assignment slightly well (Q20). When asked about their abilities/skills to organize ideas when writing essays in English, two participants stated they were moderately skillful, one stated her English writing skills were slightly good, and one reported that the English writing skills were not good (Q21). When writing essays in English, one participant indicated that she was moderately good at supporting each main idea, two participants acknowledged they were slightly good at supporting main ideas, and one participant stated she was not good at supporting main ideas (Q22). When writing essays in English, one participant reported that her use of appropriate grammar was moderately good, two participants concurred that their use of appropriate grammar was slightly good, and one participant stated that her use of appropriate English grammar

was not good (Q23). When writing essays in English, two participants reported that their vocabulary was used moderately well, and one participant reported her vocabulary was used slightly well. One participant stated her vocabulary was not used well (Q24). Pre-service teachers' writing self-efficacy before the preparation can be seen in Table 7.

Table 7

Pre-Service Teachers' Writing Self-Efficacy before the Preparation Items with Percentages of Students Selecting Each Alternative (n = 4)

Survey Question	Extremely	Very	Moderately	Slightly	Not at all
16. How good do you believe your ICT skills are?	0 (0%)	0 (0%)	1 (25%)	2 (50%)	1 (25%)
17. How important do you believe the use of ICT is to facilitate English writing instruction?	1 (25%)	3 (75%)	0 (0%)	0 (0%)	0 (0%)
18. How good do you believe you are at providing feedback to peers' work or future students' work?	0 (0%)	0 (0%)	2 (50%)	2 (50%)	0 (0%)
19. Overall, how good do you believe you are at writing essays in English?	0 (0%)	0 (0%)	0 (0%)	4 (100%)	0 (0%)
20. How well do you believe your writing accomplishes the purpose of the assignment when writing essays in English?	0 (0%)	0 (0%)	0 (0%)	4 (100%)	0 (0%)
21. How good do you believe you are at organizing ideas when writing essays in English?	0 (0%)	0 (0%)	2 (50%)	1 (25%)	1 (25%)
22. How good do you believe you are at supporting each main idea when writing essays in English?	0 (0%)	0 (0%)	1 (25%)	2 (50%)	1 (25%)
23. How well do you believe your use of appropriate grammar when writing essays in English?	0 (0%)	0 (0%)	1 (25%)	2 (50%)	1 (25%)

Survey Question	Extremely	Very	Moderately	Slightly	Not at all
24. How well do you believe your vocabulary is used when writing essays in English?	0 (0%)	0 (0%)	2 (50%)	1 (25%)	1 (25%)

Post-Questionnaire Results

The post-questionnaire data were collected at the end of the study right after the participants completed the interviews. The data included all participants' responses to the nine questions regarding their writing self-efficacy, which were later used to compare to the pre-questionnaire with their responses to examine how their self-efficacy changed after CMPR. Because the pre-and post-questionnaires were anonymous, they were not broken down by individual participants and the reports would not go into that area. Therefore, all I could report on was the overall perceived improvement. The post-questionnaire data also included all participants' perceptions of CMPR and peer feedback as pre-service teachers, and their reaction to the CMC features as implemented in this study (i.e., *Microsoft Word*, *Zoom*, and email) after CMPR. The results of these data allowed me to understand the participants' overall perceptions towards their writing abilities, CMPR, peer feedback, and the CMC features as implemented in this study after CMPR. However, the results of these data were not used to compare to the pre-questionnaire item by item, but overall due to dissimilarity of the questions. The post-questionnaire data were analyzed through the Qualtrics Survey Platform. The findings will be discussed in the following paragraphs.

Pre-Service Teachers' Writing Self-Efficacy after CMPR

Students' responses regarding their writing self-efficacy after the CMPR activity varied. When asked overall how proficient they were at writing essays in English now, three participants reported they were moderately good, and one participant indicated she was slightly good (Q1). When writing essays in English to accomplish the purpose of the assignment, two participants indicated they were writing very well, one participant reported she was moderately good, and one participant stated she was slightly good (Q2). When asked about their abilities/skills to organize ideas when writing essays in English now, two participants stated their skills were very good, one participant indicated her skills were moderately good, and one participant stated her skills were slightly good (Q3). When writing essays in English, three participants indicated that they supported each main idea very well now, and one participant stated she supported each main idea slightly well (Q4). When writing essays in English, one participant reported that her use of appropriate grammar was very good now, and two participants concurred that they were moderately good, and one participant stated she was slightly good now (Q5). When writing essays with English vocabulary, two participants reported that their vocabulary was used very well, and two participants indicated their vocabulary was used moderately well now (Q6).

All participants had much stronger opinions towards their ICT skills used during this CMPR study. When asked how proficient participants were when using ICT skills now, one participant indicated that her ICT skills were extremely good, two participants stated their ICT skills were very good, and one participant indicated her ICT skills were moderately good (Q7). Three participants acknowledged the use of ICT to facilitate

English writing instruction as a pre-service teacher was extremely important now, and one participant stated the use of ICT was very important (Q8). One participant concurred she was extremely good at providing feedback to peers' or future students' work, one stated she was very good, and two participants indicated they were moderately good (Q9). Pre-service teachers' writing self-efficacy after the preparation can be seen in Table 8.

Table 8

Pre-Service Teachers' Writing Self-Efficacy After the Preparation Items with Percentages of Students Selecting Each Alternative (n = 4)

Survey Question	Extremely	Very	Moderately	Slightly	Not at all
1. Overall, how good do you believe you are at writing essays in English <u>now</u> ?	0 (0%)	0 (0%)	3 (75%)	1 (25%)	0 (0%)
2. <u>Now</u> , how well do you believe your writing accomplishes the purpose of the assignment when writing essays in English?	0 (0%)	2 (50%)	1 (25%)	1 (25%)	0 (0%)
3. <u>Now</u> , how good do you believe you are at organizing ideas when writing essays in English?	0 (0%)	2 (50%)	1 (25%)	1 (25%)	0 (0%)
4. <u>Now</u> , how good do you believe you are at supporting each main idea when writing essays in English?	0 (0%)	3 (75%)	0 (0%)	1 (25%)	0 (0%)
5. <u>Now</u> , how well do you believe you use appropriate grammar when writing essays in English?	0 (0%)	1 (25%)	2 (50%)	1 (25%)	0 (0%)
6. <u>Now</u> , how well do you believe your vocabulary is used when writing essays in English?	0 (0%)	2 (50%)	2 (50%)	0 (0%)	0 (0%)
7. <u>Now</u> , how good do you believe your ICT skills are?	1 (25%)	2 (50%)	1 (25%)	0 (0%)	0 (0%)

Survey Question	Extremely	Very	Moderately	Slightly	Not at all
8. <u>Now</u> , how important do you believe the use of ICT is to facilitate English writing instruction?	3 (75%)	1 (25%)	0 (0%)	0 (0%)	0 (0%)
9. <u>Now</u> , how good do you believe you are at providing feedback to peers' work or future students' work?	1 (25%)	1 (25%)	2 (50%)	0 (0%)	0 (0%)

Pre-Service Teachers' Change in Writing Self-Efficacy

The compared pre-and post-questionnaires allowed me to examine the participants' change in perception of writing self-efficacy. After participating in the CMPR preparation and activity, all participants' sense of English writing self-efficacy as pre-service teachers increased overall. Before CMPR, all participants reported that they were slightly good at writing essay in English overall. While three participants increased from slightly good to moderately good, one participant stayed slightly good at writing essays. All participants indicated their writing accomplished the purpose of the assignment slightly well. All participants did increase their abilities to accomplish the purpose of the assignment. Two participants increased to very well, one participant increased to moderately good, and one participant increased to slightly good.

Two participants stated they were moderately skillful, one stated she was slightly good, and one reported that they were not good in their abilities to organize ideas. However, two participants stated their skills increased to very good, one participant increased to moderately good, and one participant increased to slightly good. With supporting each main idea, one participant was moderately good, two participants were slightly good, and one participant was not good. However, three participants stated their

abilities to support each main idea increased to very good, and one participant increased to slightly good.

One participant reported that her use of appropriate grammar was moderately good, two participants concurred that she was slightly good, and one participant stated that she was not good. However, one participant reported her use of appropriate grammar increased to very good, two participants increased to moderately good, and one participant increased to slightly good. Two participants reported their use of vocabulary was moderately good, one participant reported she was slightly good, and one participant stated she was not good. All participants did increase their abilities to use vocabulary. Two participants increased to very good and two participants increased to moderately good.

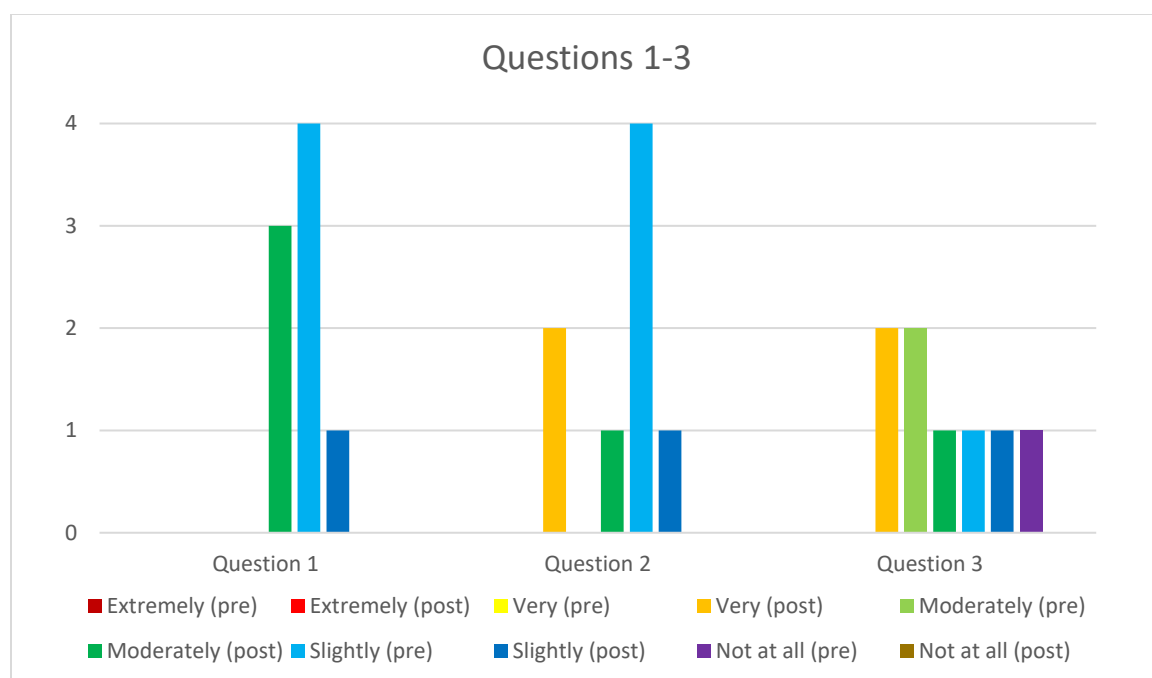
All participants had strong opinions towards their ICT skills used during this CMPR study. Before CMPR, one participant stated her ICT skills were moderate, two participants stated they were slightly good, and one participant indicated she was not good. However, all participants' opinions and ICT skills increased. One participant increased to extremely good, two participants increased to very good, and one participant increased to moderately good. All participants also had strong opinions towards the use of ICT to facilitate English writing instruction as a pre-service EFL teacher. One participant acknowledged it was extremely important, whereas three participants stated it was very important. All participants had stronger opinions. Three participants increased to extremely important now, and one participant increased to very important.

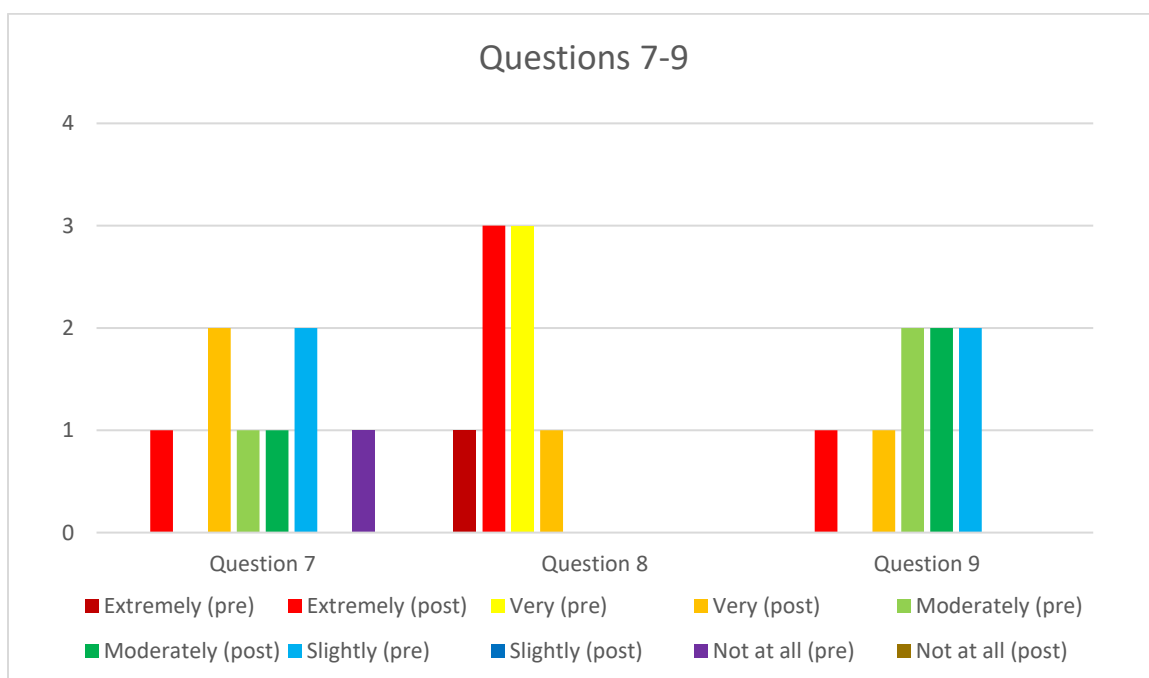
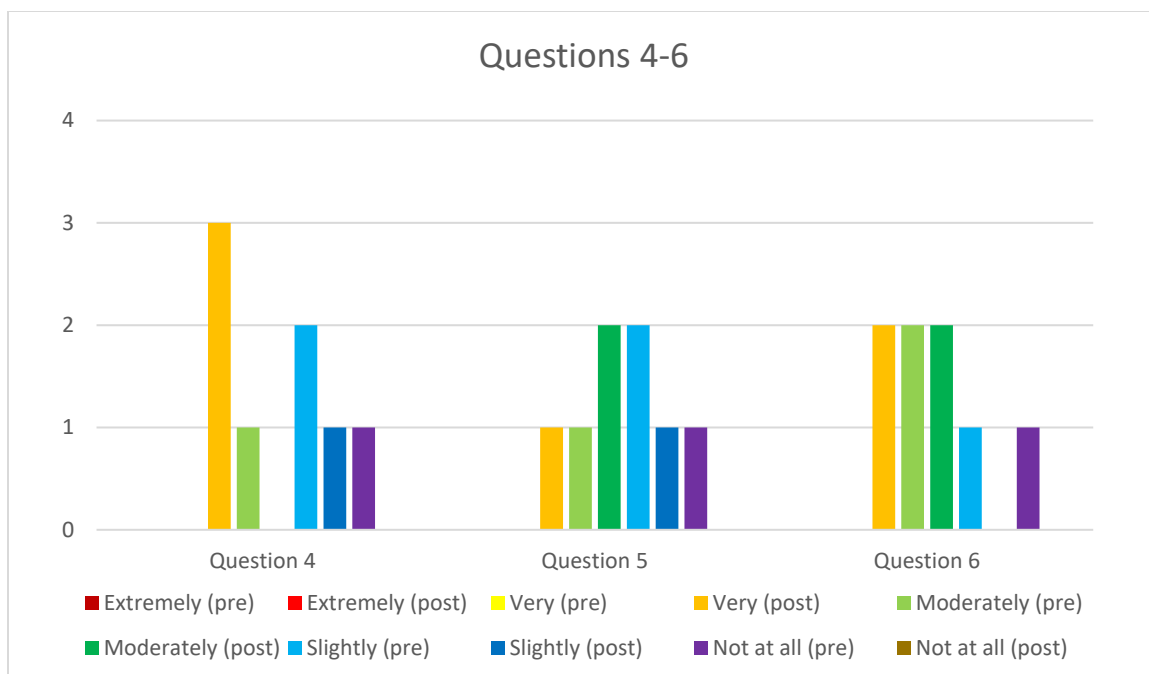
With providing feedback to peers' or future students' work, two participants concurred they were moderately good, and two participants stated they were slightly

good. However, one participant stated her abilities to provide feedback to peer's or future students' work increased to extremely good, one participant increased to very good, and two participants increased to moderately good. Pre-service teachers' change in writing self-efficacy as a whole after the preparation can be seen in Figure 3. The charts were broken up by question clusters for ease of reading.

Figure 3

Pre-Service Teachers' Change in Perceptions of Writing Self-Efficacy as a Whole After the Preparation





Pre-Service Teachers' Perceptions of CMPR and Peer Feedback after CMPR

Two participants reported they strongly liked CMPR, and two participants somewhat liked it (Q10). One participant stated CMPR was extremely effective in improving their writing of essays in English whereas three participants indicated it was

very effective (Q11). One participant reported that the feedback she gave to her peer was a little insufficient, two participants indicated that their peer feedback was just right, and one participant stated she gave the peer feedback a little too much (Q12). Three participants reported that the peer feedback they received during CMPR was just right, and one participant stated it was a little too much (Q13). When asked how much of the peer feedback they understood, three participants indicated that they understood most of the peer feedback received while one participant reported that she understood a little of it (Q14). Two participants indicated they used most of the peer feedback to revise their subsequent drafts, one participant used some of the peer feedback, and one participant used a little of it (Q15).

One participant believed computer-mediated peer feedback was extremely helpful for improving her English writing in accomplishing the purpose of the assignment, and two participants thought it was very helpful while one thought it was moderately helpful (Q16). One participant acknowledged computer-mediated peer feedback was extremely helpful for improving the organization of ideas in her essays, and three participants stated it was very helpful (Q17). Two participants indicated that computer-mediated peer feedback was very helpful for improving the support they gave for each main idea in their essays, and two participants reported that it was slightly helpful (Q18). Only one participant reported that computer-mediated peer feedback was extremely helpful for improving their grammar, two participants indicated that it was very helpful, and one participant thought it was moderately helpful (Q19). One participant indicated that computer-mediated peer feedback was extremely helpful for improving their vocabulary, two participants thought it was very helpful, and one participant thought it was slightly

helpful (Q20). Overall, one participant acknowledged computer-mediated peer feedback was extremely helpful, two participants stated it was very helpful, and one participant indicated that it was moderately helpful (Q21).

Two participants reported CMPR was extremely helpful for revising subsequent drafts, and two participants indicated that it was very helpful (Q22). Two participants reported that giving and receiving feedback on computer was slightly difficult while two participants indicated that it was not difficult at all (Q23). Only one participant reported that reading her peer's draft on a computer was very difficult, and one participant indicated that it was slightly difficult while two participants thought it was not difficult at all (Q24). One participant reported that she was able to access a computer easily when wanting to do CMPR, and three participants indicated that it was very easy (Q25). When asked how much they wanted to continue doing CMPR in writing classes, two participants reported they wanted to continue doing CMPR very much, and one participant indicated that she wanted to continue doing CMPR much while one participant wanted to continue doing CMPR moderately. Pre-service teachers' perceptions of CMPR and peer feedback after the preparation can be seen in Table 9.

Table 9

Pre-Service Teachers' Perceptions of CMPR and Peer Feedback after the Preparation
Items with Percentages of Students Selecting Each Alternative (n = 4)

Survey Question	Strongly like	Like somewhat	Neither like or dislike	Dislike somewhat	Strongly dislike
10. How much do you like CMPR?	2 (50%)	2 (50%)	0 (0%)	0 (0%)	0 (0%)

Survey Question	Extremely	Very	Moderately	Slightly	Not at all
11. How effective do you think CMPR is improving your writing of essays in English?	1 (25%)	3 (75%)	0 (0%)	0 (0%)	0 (0%)
16. How helpful was computer-mediated peer feedback for improving your English writing in accomplishing the purpose of the assignment?	1 (25%)	2 (50%)	1 (25%)	0 (0%)	0 (0%)
17. How helpful was computer-mediated peer feedback for improving the organization of ideas in your essays?	1 (25%)	3 (75%)	0 (0%)	0 (0%)	0 (0%)
18. How helpful was computer-mediated peer feedback for improving the support you gave for each main idea in your essays?	0 (0%)	2 (50%)	0 (0%)	2 (50%)	0 (0%)
19. How helpful was computer-mediated peer feedback for improving your grammar?	1 (25%)	2 (50%)	1 (25%)	0 (0%)	0 (0%)
20. How helpful was computer-mediated peer feedback for improving your vocabulary?	1 (25%)	2 (50%)	0 (0%)	1 (25%)	0 (0%)
21. Overall, how helpful was computer-mediated peer feedback?	1 (25%)	2 (50%)	1 (25%)	0 (0%)	0 (0%)
22. How helpful was CMPR for revising subsequent drafts?	2 (50%)	2 (50%)	0 (0%)	0 (0%)	0 (0%)
23. How difficult was giving/receiving feedback on the computer?	0 (0%)	0 (0%)	0 (0%)	2 (50%)	2 (50%)
24. How difficult was reading your peers' drafts on a computer?	0 (0%)	1 (25%)	0 (0%)	1 (25%)	2 (50%)
25. How easily were you able to access a computer when you wanted to do CMPR?	1 (25%)	3 (75%)	0 (0%)	0 (0%)	0 (0%)
Survey Question	Very insufficient	A little insufficient	Just right	A little too much	Far too much
12. How much peer feedback did you give during CMPR?	0 (0%)	1 (25%)	2 (50%)	1 (25%)	0 (0%)
13. How much peer feedback did you receive during CMPR?	0 (0%)	0 (0%)	3 (75%)	1 (25%)	0 (0%)
Survey Question	All	Most	Some	A little	None
14. How much of the peer feedback did you understand?	0 (0%)	3 (75%)	0 (0%)	1 (25%)	0 (0%)
15. How much of the peer feedback did you use to revise your subsequent drafts?	0 (0%)	2 (50%)	1 (25%)	1 (25%)	0 (0%)
Survey Question	Very much	Much	Moderate	Very little	Not at all

26. How much do you want to continue doing CMPR in writing classes?	2 (50%)	1 (25%)	1 (25%)	0 (0%)	0 (0%)
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Pre-Service Teachers' Change in Overall Perceptions of CMPR and Peer Feedback after CMPR

Prior to this study, all participants were taught to write essays in Thai (i.e., their first language/L1), but their experience regarding giving and/or receiving feedback in Thai essays varied. Only one participant received teacher and peer feedback on every Thai essay, and one participant received teacher and peer feedback once or twice. However, two participants never received teacher and peer feedback. Unlike their experience writing in Thai, the participants had less English writing opportunities. Only one out of the four participants indicated having been taught to write essays in English while all never had feedback experience from teachers and peers. Regarding their preferences related to giving and receiving feedback, all participants felt they would like to practice giving peer feedback and receiving both peer and teacher feedback on every essay during this current English writing course.

The findings of pre-and post-questionnaires regarding the participants' perceptions of CMPR and peer feedback revealed all participants had positive attitudes towards the use of CMPR and providing and/or receiving peer feedback after CMPR. All participants believed CMPR was effective in improving their writing of essays in English. Participants felt they received and gave a variety of feedback that was between insufficient or overwhelming. Regarding the application and comprehension of feedback, most participants understood their peer feedback and applied it in their essay. They believed computer-mediated peer feedback was helpful in accomplishing the purpose of

the assignment, improving the organization and support of ideas in their essays, and improving their use of grammar and vocabulary in their essays. All participants felt CMPR was helpful for revising subsequent drafts. Half of participants perceived giving, receiving, and reading feedback on computer was not difficult. All participants felt they were able to access a computer easily when wanting to do CMPR. They would like to continue doing CMPR in their future writing classes.

Students' Reaction to CMC Features (Microsoft Word, Zoom, and email) after CMPR

Two participants reported that they preferred to give feedback on *Microsoft Word* instead of on paper very much, one participant preferred this much, and one participant preferred it moderately (Q27). Three participants indicated that they strongly liked to use Track Changes and Comments when providing feedback in *Microsoft Word*, and one participant somewhat liked it (Q28). One participant found Track Changes and Comments to be extremely helpful, and three participants found these features very helpful when providing feedback in *Microsoft Word* (Q29). Two participants found it very easy to provide feedback right next to the problematic sentences and paragraphs in *Microsoft Word*, and two participants found this to be easy (Q30). Three participants found it very easy to read comments right next to the problematic sentences and paragraphs, and one participant found this to be easy (Q31). Two participants indicated that giving comments right next to the problematic sentences and paragraphs was extremely helpful, one participant found this to be very helpful, and one participant found it moderately helpful (Q32).

Only one participant reported that Track Changes and Comments in *Microsoft Word* was extremely convenient for giving feedback, and three participants found this

very convenient (Q33). One participant indicated Track Changes and Comments in *Microsoft Word* were extremely efficient as a tool for giving and receiving feedback, and three participants found Track Changes and Comments in *Microsoft Word* very efficient (Q34). Two participants indicated that the spelling and grammar checking feature in *Microsoft Word* was extremely helpful, and two participants found this to be very helpful (Q35). When asked how they thought about giving feedback on *Microsoft Word*, two participants stated giving feedback on *Microsoft Word* was extremely easy, one participant indicated giving feedback on *Microsoft Word* was somewhat easy, and one participant stated it was neither easy nor difficult (Q36). Three participants found it extremely easy when giving feedback on *Microsoft Word*, and one participant found it somewhat easy (Q37). The feedback received on *Microsoft Word* was found to be very understandable by three participants and moderately understandable by one participant (Q38).

The participants' experiences with online communication changed throughout the study and was reflected in the responses. Two participants indicated that sending drafts to peers via email was extremely efficient, and two participants found sending drafts to peers via email very efficient (Q39). Two participants strongly liked to discuss feedback via Zoom video conferencing, and two participants somewhat liked it (Q40). Three participants found Zoom video conferencing was extremely helpful for discussing peer feedback, and one participant found it very helpful (Q41). Three participants stated Zoom video conferencing was extremely helpful for clarifying misunderstandings regarding peer feedback, and one participant found it to be very helpful (Q42). Three participants indicated that the sharing screen in Zoom was extremely helpful for discussing feedback,

and one participant found it very helpful (Q43). Only one participant strongly liked working in pairs or groups in Zoom (breakout rooms), and three participants somewhat liked it (Q44). Three participants found using features (e.g., annotate and chat) in Zoom was extremely helpful while sharing a screen and discussing feedback, and one participant found this moderately helpful (Q45). Two participants found it very easy to discuss feedback via Zoom, one participant found it easy, and one participant found it moderately easy (Q46). Three participants indicated that discussing feedback via Zoom was extremely helpful for revising subsequent drafts, and one participant found it moderately helpful (Q47). Three participants reported Zoom was extremely efficient as a tool for discussing feedback, and one participant found Zoom moderately efficient (Q48). Pre-service teachers' reaction to CMC features (i.e., *Microsoft Word*, Zoom, and email) can be seen in Table 10.

Table 10

Pre-Service Teachers' Reaction to CMC Features (Microsoft Word, Zoom, and email)

Items with Percentages of Students Selecting Each Alternative (n = 4)

Survey Question	Very much	Much	Moderate	A little	Very little
27. How much do you prefer to give feedback on your peer's draft in <i>Word</i> compared to on paper?	2 (50%)	1 (25%)	1 (25%)	0 (0%)	0 (0%)
Survey Question	Strongly like	Like somewhat	Neither like or dislike	Dislike somewhat	Strongly dislike
28. How much do you like to use Track Changes and Comments when providing feedback in <i>Word</i> ?	3 (75%)	1 (25%)	0 (0%)	0 (0%)	0 (0%)
40. How much did you like to discuss feedback via Zoom video conferencing?	2 (50%)	2 (50%)	0 (0%)	0 (0%)	0 (0%)
44. How much do you like working in pairs/groups in Zoom (breakout rooms)?	1 (25%)	3 (75%)	0 (0%)	0 (0%)	0 (0%)

Survey Question	Extremely	Very	Moderately	Slightly	Not at all
29. How helpful was Track Changes and Comments when providing feedback in <i>Word</i> ?	1 (25%)	3 (75%)	0 (0%)	0 (0%)	0 (0%)
32. How helpful was giving comments right next to the problematic sentences/paragraphs?	2 (50%)	1 (25%)	1 (25%)	0 (0%)	0 (0%)
33. How convenient was Track Changes and Comments in <i>Word</i> for giving feedback?	1 (25%)	3 (75%)	0 (0%)	0 (0%)	0 (0%)
34. How efficient was Track Changes and Comments in <i>Word</i> as a tool for giving/receiving feedback?	1 (25%)	3 (75%)	0 (0%)	0 (0%)	0 (0%)
35. How helpful was the spelling and grammar checking feature in <i>Word</i> ?	2 (50%)	2 (50%)	0 (0%)	0 (0%)	0 (0%)
38. How understandable was the feedback received on <i>Word</i> ?	0 (0%)	3 (75%)	1 (25%)	0 (0%)	0 (0%)
39. How efficient was sending drafts to peers via email?	2 (50%)	2 (50%)	0 (0%)	0 (0%)	0 (0%)
41. How helpful was Zoom video conferencing for discussing peer feedback?	3 (75%)	1 (25%)	0 (0%)	0 (0%)	0 (0%)
42. How helpful was Zoom video conferencing for clarifying misunderstandings regarding peer feedback?	3 (75%)	1 (25%)	0 (0%)	0 (0%)	0 (0%)
43. How helpful was the sharing screen in Zoom for discussion feedback?	3 (75%)	1 (25%)	0 (0%)	0 (0%)	0 (0%)
45. How helpful was using features (e.g., annotate and chat) in Zoom while sharing a screen and discussing feedback?	3 (75%)	0 (0%)	1 (25%)	0 (0%)	0 (0%)
47. How helpful was discussing feedback via Zoom for revising subsequent drafts?	3 (75%)	0 (0%)	1 (25%)	0 (0%)	0 (0%)
48. How efficient is Zoom as a tool for discussing feedback?	3 (75%)	0 (0%)	1 (25%)	0 (0%)	0 (0%)
Survey Question	Very easy	Easy	Moderate	A little difficult	Very difficult
30. How was it to provide feedback right next to the problematic sentences/paragraphs in <i>Word</i> ?	2 (50%)	2 (50%)	0 (0%)	0 (0%)	0 (0%)
31. How was it to read comments right next to the problematic sentences/paragraphs?	3 (75%)	1 (25%)	0 (0%)	0 (0%)	0 (0%)
46. How was it to discuss feedback via Zoom?	2 (50%)	1 (25%)	1 (25%)	0 (0%)	0 (0%)
Survey Question	Extremely easy	Somewhat easy	Neither easy nor difficult	Somewhat difficult	Extremely difficult
36. How do you think about giving feedback on <i>Word</i> ?	2	1	1	0	0

	(50%)	(25%)	(25%)	(0%)	(0%)
37. How was it when giving feedback on <i>Word</i> ?	3	1	0	0	0
	(75%)	(25%)	(0%)	(0%)	(0%)

Pre-Service Teachers' Change in Overall Reaction to CMC Features (Microsoft Word, Zoom, and email) after CMPR

Prior to this study, three participants used *Microsoft Word* to write essays in Thai, but they never used Track Changes and Comments to initiate and receive comments, while one participant had no writing experience using *Microsoft Word* at all. Although the participants had used *Microsoft Word* and its features to write in Thai, they had less opportunities when writing in English; two of them had used *Microsoft Word* to write essays in English, but none of them had ever used Track Changes and Comments to initiate or receive comments prior to this study. Three participants reported they had participated in Zoom discussions once or twice before this study, but never used Zoom to discuss neither their Thai nor English essays. One participant never participated in Zoom discussions.

The findings of pre-and post-questionnaires regarding the participants' reactions to CMC features revealed all participants had positive attitudes towards their use of the CMC features as implemented in this study. All participants preferred to give feedback through Track Changes and Comments on *Microsoft Word* instead of on paper. They found providing feedback right next to the problematic sentences and paragraphs in *Microsoft Word* easy and conveniently helpful. Four participants learned that Track Changes and Comments in *Microsoft Word* was efficient as a tool for giving and receiving feedback and found the spelling and grammar checking feature in *Microsoft*

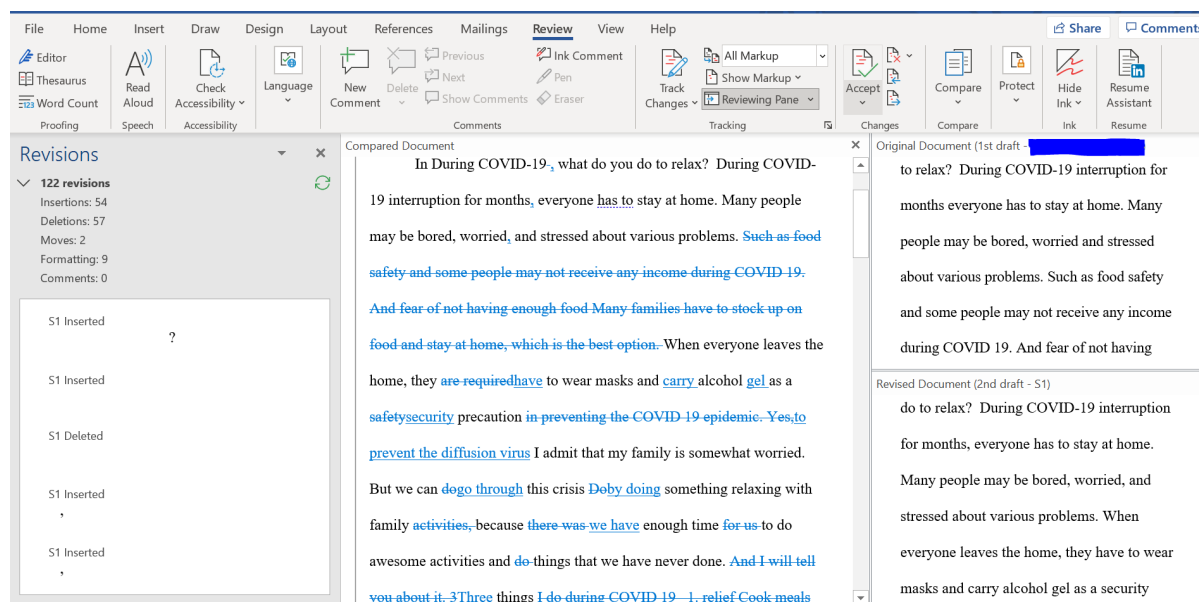
Word helpful. All participants also found giving and receiving feedback on *Microsoft Word* easily understandable.

The participants' experiences with online communication changed in the positive way throughout the study and was reflected in the responses. Although all participants never used Zoom for essay discussions prior to this study, they liked to discuss peer feedback via Zoom video conferencing because it helped clarifying misunderstandings. All participants also thought using features (e.g., annotate and chat) while sharing a screen in Zoom was helpful for discussing feedback. They liked working in pairs or groups in Zoom (breakout rooms). All participants found Zoom efficient as a tool for discussing feedback, and easy and helpful for revising subsequent drafts. All participants found sending drafts to peers via email was efficient.

The Results of Pre-Test and Post-Test Writing Revisions

The students' first and second drafts of an essay were compared using *Microsoft Word's Compare and Merge Documents* tool to highlight the differences including insertions, deletions, moves, formatting, and comments in the two versions. Draft comparisons can be seen in Figure 4.

Figure 4

Draft Comparisons

The results showed that Alice made 74 total revisions on her first draft including: 18 insertions, 21 deletions, and 35 formatting. Betty made 122 total revisions including: 54 insertions, 57 deletions, two moves, and nine formatting. Nancy made 169 total revisions on her first draft including: 85 insertions, 77 deletions, and seven formatting. Tara made 136 total revisions on her first draft including: 67 insertions, 60 deletions, and nine formatting. A list of all participants' first draft revisions can be seen in Appendix H. After examining each revision, I decided to only use revisions that related to the essay structure and grammar specified in the peer review sheet and the grammar checklist, regardless of formatting (e.g., text made bold, italics, or font change). Hence, all formatting and other changes unrelated to grammar and the essay structure, such as participants' names and word count on the papers, were not counted or used for later analysis and to answer the research questions in this study that can be seen in Table 11.

Table 11*Participants' Revisions on First Drafts*

Participant	First Draft Revision			Total
	Insertion	Deletion	Move	
Alice	17	21	0	38
Betty	54	55	2	111
Nancy	83	76	0	159
Tara	65	58	0	123

My next step was to analyze each revision manually to identify whether it was a self or peer revision by checking it with the peer feedback the participants received during the CMPR activity. The peer feedback was collected from the participants' first drafts including comments that were inserted electronically via *Microsoft Word's* Comments feature and in-text changes made to the papers via *Microsoft Word's* Track Changes. The peer feedback also covered the final comments made on the paper on the peer review sheet with the grammar checklist.

Analysis of Revisions on Participants' First Drafts

First, I opened the *Microsoft Word* files of the participants' first drafts reviewed by their peers using *Microsoft Word's* Comments to collect all peer feedback data. I clicked the "Review" tab from the ribbon bar on the top of the screen then selected "Reviewing Pane" to see all the changes each peer made to the paper in Figure 3. Also, I manually counted the peer feedback to ensure the numbers in the reviewing pane were accurate. The results indicated that Alice received 22 total peer feedback on her first draft: 12 insertions, three deletions, and seven comments. Betty received 152 total feedbacks: 73 insertions, 61 deletions, nine formatting, and nine comments. Nancy

received 97 total peer feedback on her first draft: 36 insertions, 20 deletions, and 41 comments. Tara received 172 total peer feedback on her paper: 74 insertions, 68 deletions, one formatting, and 29 comments. All feedback regarding formatting (e.g., font changed) were not counted and used for later analysis due to the focus of this study. The list of all peer feedback received on participants' first drafts can be viewed in Appendix I.

Secondly, I opened the *Microsoft Word* files of participants' peer review sheets with the grammar checklist to collect the comments made on the papers. Although the grammar checklist was later added as a final part of the peer review sheet, I separated them from one another during this analysis to see how many comments the participants made on each. In addition to checking the list, I encouraged the participants to make comments, but this activity was optional. There were not many comments made to the peer review sheet, and the peer feedback the participants received varied. Alice received 12 comments on the peer review sheet (PRS) and three comments on the grammar checklist (GC). Betty received 12 comments on the PRS and nine comments on the GC. Nancy received five comments on the PRS only. Tara received nine comments on the GC only. The numbers of all peer feedback each participant received on their first drafts, PRS, and GC can be seen in Table 12.

Table 12

All Peer Feedback Received on the Students' First Drafts (FD), PRS, and GC

Numbers and Sources of Peer Feedback						
Student	FD				PRS	GC
	Insertion	Deletion	Comment	Total	Comment	Comment
Alice	12	3	7	22	12	3

Numbers and Sources of Peer Feedback						
Student	FD				PRS	GC
	Insertion	Deletion	Comment	Total	Comment	Comment
Betty	73	61	9	143	12	9
Nancy	36	20	41	97	5	0
Tara	74	68	29	171	0	9

Note. All feedback regarding formatting (e.g., font change) were not counted and used for later analysis due to the focus of this study.

Finally, I carefully and manually examined the peer feedback on each of the participant's second drafts against their first drafts to determine if it was a peer or self-revision feedback. To make a comparison, I created an Excel spreadsheet with two types of categories and defined them to help make the decision easier. Revisions that fell into the peer-revision category were those related to the peer feedback, while revisions that fell into the self-revision category were those unrelated to the peer feedback or those generated by the participants alone. Any revisions that contained both peer and self-revisions were considered peer revisions.

Types of Peer Feedback

The results indicated that the four participants' application of peer feedback to revise their work varied. Alice's revised first draft contained 38 revisions: 32 self-revisions and six peer revisions. Also, she revised her first draft based on 13 peer comments: five (out of seven) comments from the FD, six (out of 12) comments from the PRS, and two (out of three) comments from the GC. Of the 37 revisions Betty made on Alice's first draft, 19 revisions were used. It can be concluded that Alice used more than half of the feedback received from Betty to write her second draft. Betty's revised draft contained 111 revisions in total: 16 self-revisions and 95 peer-revisions. Also, she revised

her paper according to 25 peer comments: eight (out of nine) comments on the FD, nine (out of 12) comments on the PRS, and eight (out of nine) comments on the GC. Of 164 revisions that Alice made on Betty's first draft, 120 revisions were used. This means Betty used about two-thirds of the peer feedback to improve her work. Nancy's revised draft included 159 revisions in total: 113 self-revisions and 46 peer-revisions. Also, she revised her paper according to 33 peer comments: 31 (out of 41) comments on the FD and two (out of five) comments on the PRS. Of 102 revisions that Tara made on Nancy's first draft, 79 revisions were used. This means Nancy used four-fifth of the peer feedback to revise her paper. Tara's draft that was revised contained 123 revisions in total: 29 self-revisions and 94 peer-revisions. Also, she revised her paper using 20 peer comments: 15 (out of 29) comments on the FD and five (out of nine) comments on the GC. Of 180 revisions that Nancy made on Tara's first draft, 114 revisions were used. This means Tara used three-fifth of the peer feedback to improve her work. The four students' percentage of application of the peer feedback for their second drafts and the sources of revisions they used for their second drafts can be seen in Table 13.

Table 13

The Percentage of Participants' Application of the Peer Feedback and Sources of Revision on their Second Drafts

Participant	Source of revisions on 2 nd Drafts			Peer Feedback	
	Self (In-text)	Peer (In-text)	Peer Comments	Total Received	Total Used
Alice	32	6	13	37	19 (51%)
Betty	16	95	25	164	120 (73%)
Nancy	113	46	33	102	79 (77%)
Tara	29	94	20	180	114 (63%)

The Results of Peer Comment Analysis

Peer comments made by participants were analyzed to observe the effectiveness of CMPR training in increasing the number of peer revision-oriented comments and improving their five-paragraph essay writing. The analysis and interpretation of the data focused on how the comments from the peer reviews were distributed in both global and local areas. Global feedback is concerned with “idea development, audience and purpose, and organization of writing,” while local feedback refers to editing issues such as “wording, grammar, and punctuation” (McGroarty & Zhu, 1997, p. 14). Additionally, in regards to the nature of the comments, the participants’ comments were categorized into revision-oriented and non-revision-oriented (Liu & Sadler, 2003).

The peer comment analysis procedure consisted of four steps. First, I collected the peer comments made on all participants’ first drafts, the peer review sheets, and the grammar checklists. As mentioned in the instrumentation section in Chapter 3, I added the grammar checklist as the final part of the peer review sheet adapted from Min’s (2006) guidance sheet for reviewing multiple-paragraph essays to make the balance between global and local areas. The questions on the peer review sheet were primarily global in nature (e.g., Read the first paragraph. Was there a thesis statement toward the end of the introduction?). Therefore, adding the grammar checklist, which was local areas in nature, was consider balanced and useful to help guide the participants on both areas when reviewing their peer’s work. In this analysis, the peer review sheet and the grammar checklist were counted and analyzed separately to determine the effectiveness of the CMPR training in increasing the number of peer revision-oriented comments in both areas. I used all peer comments made on the students’ first drafts that I manually counted

earlier for the analysis. There were 136 peer comments in total: 30, 22, 38, and 46 comments made by Alice, Betty, Nancy, and Tara, respectively, which can be seen in Table 14.

Table 14

All Peer Comments Made on the Students' First Drafts and Their Sources of Revision

Student	Peer Comments/Sources of Peer Comments			Total
	FD	PRS	GC	
Alice	9	12	9	30
Betty	7	12	3	22
Nancy	29	0	9	38
Tara	41	5	0	46

Secondly, I opened each student's *Microsoft Word* file of the reviewed first draft to copy all peer comments and paste them in a column in the Excel spreadsheet that I created to store and keep my data organized in one place. Creating the Excel spreadsheet allowed me to go back and read all the comments easily without having to open each of the *Microsoft Word*'s files to read the peer comments. Thirdly, I read each comment repeatedly and critically to determine its meaning before placing it into two categories: the areas (global versus local) and nature (revision-oriented versus non-revision-oriented). While reading, I kept in mind the definitions of these two categories to help me stay focused and make the right choices during the analysis. Finally, each peer comment was put into the two categories and inserted into the analysis grid adapted from Liu and Sadler (2003) in Appendix G. The analysis grid with examples of peer comments that were categorized by areas and natures of comments can be seen in Table 15.

Table 15

An Example of Peer Comments Categorized by Areas and Natures

Global Area		Local Area	
Revision-oriented (Nature)	Non-revision- oriented (Nature)	Revision-oriented (Nature)	Non-revision- oriented (Nature)
“This paragraph looks shorter in length than the other two above. You should write more to cover more content” (C6).	“It was good content that provided various good perspectives about the crisis of COVID-19” (C19).	“Add ‘a’ in front of ‘huge bowl’ to know how many cups there are” (C3).	“I really like this word” (C45).

It was found that nearly all of the comments made by participants on their peers’ first drafts, both global and local, were revision oriented. Of 30 peer comments that Alice made on Betty’s first draft, 26 comments were revision-oriented: 11 comments were in the global area and 15 comments were in the local area. Of 22 comments that Betty made on Alice’s draft, all of them were revision-oriented: 15 comments in the global area and seven comments in the local area. Surprisingly, Betty did not make any non-revision-oriented comments. Of 38 comments that Nancy made on Tara’s first draft, 31 comments were revision-oriented: seven comments in the global area and 24 comments in the local area. Of 46 comments that Tara made on Nancy’s first draft, 40 comments were revision-oriented: one comment was in the global area and 39 comments were in the local area. The percentage of peer comments that each student made by area and nature can be seen in Table 16.

Table 16*Percentage of Peer Comments by Area and Nature*

Area	Global		Local		Total Comment
Nature	Revision-oriented	Non-revision-oriented	Revision-oriented	Non-revision-oriented	
Name					
Alice	11 (37%)	3 (10%)	15 (50%)	1 (3%)	30
Betty	15 (68%)	0 (0%)	7 (32%)	0 (0%)	22
Nancy	7 (18%)	1 (3%)	24 (63%)	6 (16%)	38
Tara	1 (3%)	3 (6%)	39 (85%)	3 (6%)	46

When analyzed by the nature of comments, nearly all of the comments (119 out of 136, 87%) the students made were revision-oriented comments. Of 136 peer comments in total, 119 (87%) comments were revision oriented, and 17 (13%) comments were non-revision oriented. Betty was the only student who did not make any non-revision-comments. Percentage of the peer comments by nature can be seen in Table 17.

Table 17*Percentage of Peer Comments by Nature*

Student	Peer Comments by Nature		Total
	Revision-oriented	Non-revision-oriented	Comment
Alice	26 (87%)	4 (13%)	30
Betty	22 (100%)	0	22
Nancy	31 (81%)	7 (19%)	38
Tara	40 (88%)	6 (12%)	46
Total	119 (87%)	17 (13%)	136

When analyzed by the area of comments (i.e., global vs. local), most of the total comments (70%) made by all students were in the local area. When considering each student individually, her area of comments varied. Almost all of the comments (91% and 79%) made by Tara and Nancy, respectively, were in local area, and over half of the comments (53%) made by Alice were in local area. Betty was an only student whose two-third comments (68%) were in the global area. Percentage of the peer comments by area can be seen in Table 18.

Table 18

Percentage of Peer Comments by Area

Student	Peer Comments by Area		Total
	Global	Local	Comment
Alice	14 (47%)	16 (53%)	30
Betty	15 (68%)	7 (32%)	22
Nancy	8 (21%)	30 (79%)	38
Tara	4 (9%)	42 (91%)	46
Total	41 (30%)	95 (70%)	136

Summary of Peer Comment Analysis Results

Almost all of the peer comments, both global and local, were revision oriented. This finding may be due to the nature of the *Microsoft Word* editing mode (i.e., the grammar and spelling check) that the students used, which was reported via the interviews. They also reported their applications of other online technology tools such as Grammarly and online dictionary, teaching documents received during the CMPR

training, the peer review sheet with grammar checklist, or worksheets from previous grammar classes. These materials may support and enhance the quality of the students' peer comments (i.e., revision oriented). The findings of the peer comment analysis showed that the CMPR training and the CMPR itself effectively increased the number of peer revision-oriented comments and improved the students' five-paragraph essay writing. Another finding was that the area of peer comments the students made were different. This may be also due to their different use of online technology tools and other materials to help when providing comments to their peers.

Interview Results

Leech and Onwuegbuzie (2007) advised “three different procedures to increase rigor and trustworthiness of the findings in the qualitative data” (p. 575). Therefore, I used more than one type of analysis (i.e., thematic analysis, case-by-case analysis, and cross-case analysis), provided member checking, and assessed a peer debriefing with regards to triangulation. Triangulation was used to increase trustworthiness and validity of qualitative findings, and it allowed me to gain a better understanding of study participants, Thai pre-service EFL teachers, and their perceptions towards their writing experiences using CMPR and CMC features and their writing self-efficacy. I also used the instructor's perceptions towards his current writing course, the students' writing abilities, and their use of CMPR. Throughout the study, I kept a reflexive journal to explore my own thoughts and observations about the participants' perceptions of CMPR, the CMC tools, and their writing self-efficacy (Janesick, 1998; Lincoln & Guba, 1985).

Thematic Analysis

Boyatzis (1998) characterized thematic analysis as a tool to apply across methods, not as a specific method. Braun and Clarke (2006) argued thematic analysis “should be considered a method in its own right” (p. 78). They mentioned that thematic analysis is a qualitative method for identifying, analyzing, and reporting patterns of meaning or themes within selected data (e.g., interviews) through a rigorous process of data analysis to provide an answer to the research question being addressed. Braun and Clarke (2006) developed the approach to thematic analysis that involves six phases of data analysis: (a) familiarizing yourself with the data, (b) generalizing initial codes, (c) searching for themes, (d) reviewing themes, (e) defining and naming themes, and (f) producing the report. They also suggested that even though these phases are sequential, analysis is typically a “*recursive*” process, with movement back and forth as needed throughout the phases (Braun & Clarke, 2006, p. 86). Their approach with step-by-step instructions is widely used among researchers and educators of psychology.

Braun and Clarke (2006) stated that thematic analysis suits questions related to people’s experiences, views, and perceptions, and “it can offer a more accessible form of analysis, particularly for those early in a qualitative research career” (p.81). Because I used thematic analysis for the first time, I followed the step-by-step guide (i.e., the six-phase process) of doing thematic analysis correctly. Through the rigorous process of thematic analysis, I sought to understand the participants’ perceptions towards their experiences using CMPR and CMC features as implemented in this study and their writing self-efficacy afterwards (i.e., the research questions). I chose to provide a rich thematic description of the data set (i.e., interview transcripts) rather than to provide a

more detailed account of one specific theme within the data. This choice was to give the reader the sense of the predominant or important theme. Also, I chose to code and identify themes or patterns in a theoretical or deductive way of thematic analysis (Boyatzis, 1998) to provide a more detailed analysis of certain aspects of data (i.e., research questions, my interest).

I manually analyzed the interview responses of my participants using thematic analysis without using any coding software programs. Following the thematic analysis, I provided a cross-case analysis of all participants' interview responses. Findings gained from these analyses, together with other findings from the analyses of the pre- and post-writing revisions, the peer comments, and the pre- and post-questionnaires, were used to strengthen the findings with regards to triangulation to answer the research questions in this study. A chart of the six phases describing thematic analysis can be seen in Table 19.

Table 19

Phases of Thematic Analysis

Phase	Description of the process
1. Familiarizing yourself with your data:	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes:	Checking in the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic 'map' of the analysis.
5. Defining and naming themes:	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
6. Producing the report:	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of

Phase	Description of the process
	selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

Note. Adapted from Braun and Clarke, 2006.

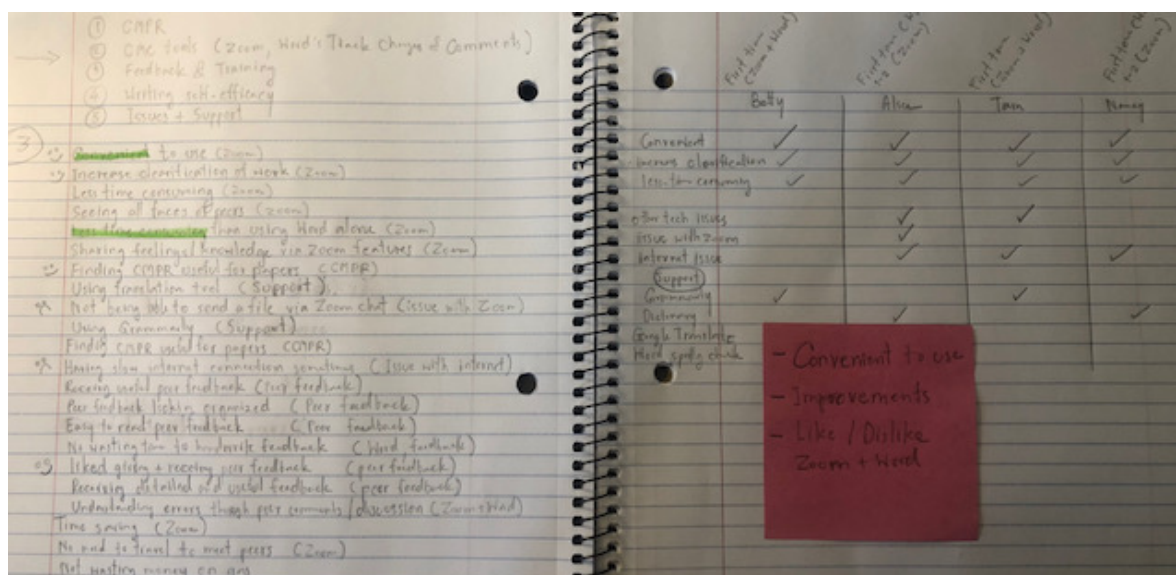
Phase One: Familiarize Yourself with the Data. During phase one, I transcribed the responses from the student participants to my interview questions regarding their experience using CMPR and CMC features and their writing self-efficacy after the preparation. The participants' technological writing experience included their use of *Microsoft Word's* Track Changes and Comments, Zoom conferencing, and email during the online peer review activities. I also transcribed the teacher participant's responses to my interview questions to see whether the participants asked for his suggestions or had a dialogue (e.g., technological and writing issues) with him while participating in this study. Transcription of verbal data was needed to conduct a thematic analysis. Lapadat and Lindsay (1999) noted that transcription of verbal data was recognized "as an interpretive act" that produces meaning rather than just recording interview answers and was crucial for data analysis (p. 81).

I familiarized myself with the data (i.e., the interview transcripts) by reading and re-reading them line by line several times to search for possible patterns. While reading the transcripts, I wrote down everything that came into my mind, marking notes, ideas, and possible coding patterns as suggested by Braun and Clarke's (2006) phase one. Ideas that emerged from these interviews belonged to participants' (i.e., Thai pre-service EFL teachers) perspectives about CMPR and CMC tools used in this study and their writing self-efficacy (i.e., research questions). As a result, words and phrases that became repetitive in nature regarding the research questions were added as initial ideas/codes. In addition, I compared the transcripts with the original audio recordings for accuracy.

Having typed, transcribed, and reviewed the interview data allowed me to become intimately familiar with the content of the data and find possible coding patterns needed for thematic analysis. I found this phase time-consuming, but spending the time was extremely important because it allowed me to understand the data content. Denzin and Lincoln (2005) and Onwuegbuzie, et.al. (2008) stated that when conducting a qualitative research study, the researcher is the main instrument collecting data. Therefore, as the instrument that drove this study, I took notes, used my journals, and created visuals (i.e., posters) to help with my data analysis and description. An example of my notes, ideas, and coding patterns of participants' interview responses can be seen in Figures 5.

Figure 5

My Hand-Written Notes, Charts, and Codes Derived from Phase One



Phase Two: Generating Initial Codes. During the second phase, I reviewed the interviews and manually coded the entire data set to generate initial codes that identified interesting key features of the data and frequent words and phrases that were relevant to answering the research questions. Saldana (2013) recommended to code on hard-copy

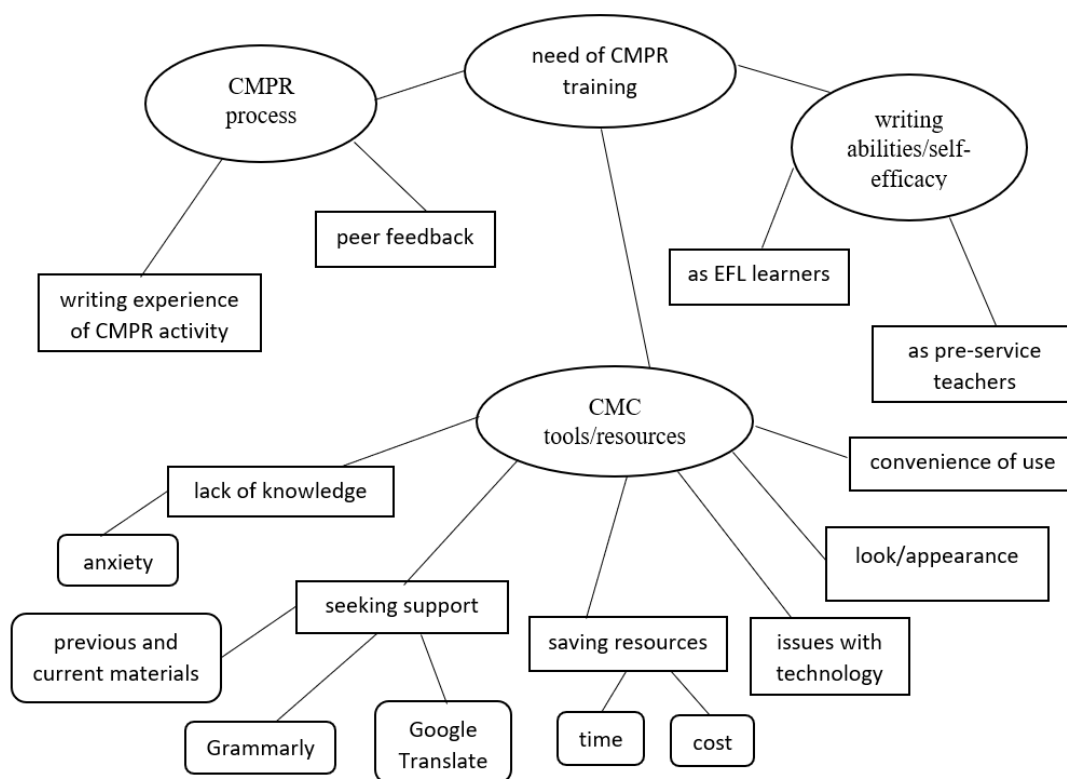
printouts in pencil first, not through a computer screen, for the first-time or small-scale studies to give the coder more control over and ownership of the work. Also, coding with traditional writing material such as red pens and highlighters allows the coder to explore data in fresh ways. Once the coder feels the codes are well set from the initial hard-copy work, they may transfer the codes onto the electronic file (Saldana, 2013). Graue and Walsh (1998) also recommended the coder “touch the data...Handling the data gets additional data out of memory and into the record. It turns abstract information into concrete data” (p. 145). Therefore, as suggested by these researchers, I manually coded my entire data set. All the codes generated in phase two were results of the participants’ beliefs regarding their use of CMPR, the CMC features implemented in this study, and their writing self-efficacy after the preparation. Coding surrounded (a) CMPR skills/process, (b) the CMPR training, (c) CMC features/tools, (d) peer interactions, (e) giving and receiving peer feedback, (f) supports and challenges about writing and tools, and (g) writing self-efficacy. Data extracts relevant to each code emerged, built ideas, and allowed me to search for themes in phase three. All codes generated during coding cycles can be seen in Appendix K.

Phase Three: Searching for Themes. The third phase involved examining the codes and collating data to identify potential themes, which were key to broader patterns of meaning. During this phase, I reviewed the sequence of initial coding and added more codes to search for themes relating to participants’ beliefs towards their use of CMPR, the CMC features implemented in this study, and their writing self-efficacy after the preparation (i.e., research questions). To stay focused, I re-read the research questions to remind me of searching for themes. I read and re-read the interview data over several

more weeks to transfer all the codes (i.e., keyword retrievals and word frequencies) onto different sticky notes and placed them on a poster. This important qualitative research method allowed me to develop visual images of all participants' beliefs regarding their use of CMPR, the CMC tools implemented in this study, and their writing self-efficacy after the preparation. When analyzing the codes and combining them to determine themes, I considered the relationship between the codes and different levels of themes. Therefore, overarching themes and sub-themes emerged. Phase three created the following themes: (a) CMPR process, (b) need of CMPR training, (c) CMC tools/resources, and (d) writing abilities/self-efficacy. Sub-themes were as follows: (a) writing experience of CMPR activity, (b) peer feedback, (c) convenience of use, (d) look/appearance, (e) saving resources (i.e., time and cost), (f) issues with technology, (g) seeking support (i.e., Grammarly, Google Translate, and previous/current materials), (h) lack of knowledge (e.g., anxiety), (i) writing abilities/self-efficacy as EFL learners, and (j) writing abilities/self-efficacy as pre-service teachers. Initial thematic map of phase three themes developed from coding cycles can be seen in Figure 6.

Figure 6

Initial Thematic Map, Showing Four Main Themes



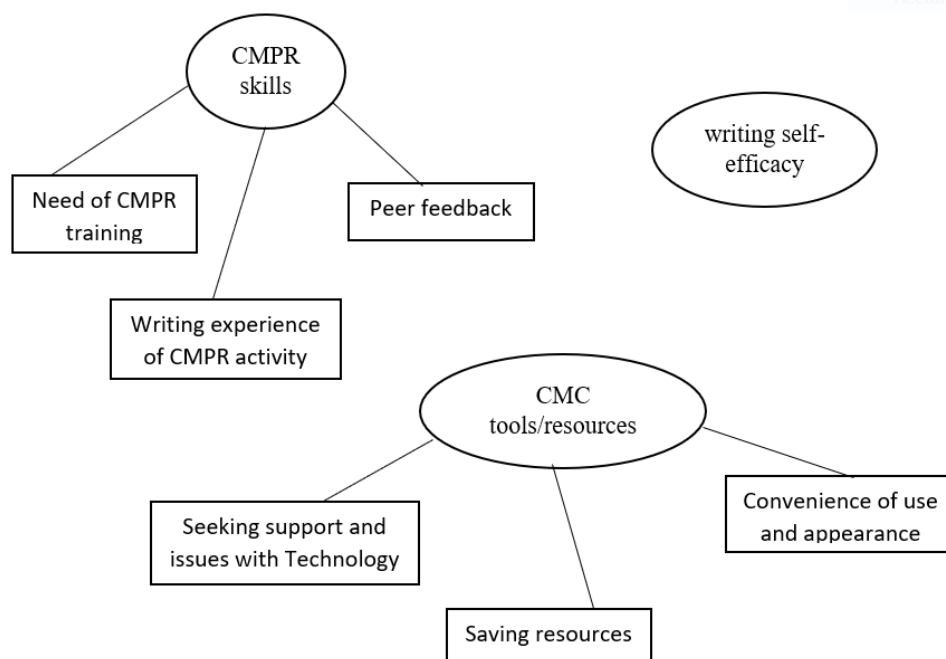
Phase Four: Reviewing Potential Themes. This phase involves two levels of reviewing and refining my themes, as well as generating a thematic map of this analysis. The individual themes were checked against the coded extracts (Level 1) and the entire dataset (Level 2) to examine whether they were coherent, told a convincing story of the data, and answered my research questions. Particularly, Level 2 was to establish the validity of whether or not the individual themes accurately represented the thematic analysis. Themes were typically refined (e.g., split, combined, or discarded) during this phase.

To ensure validity, I reviewed potential themes as I read and re-read the codes created from the interviews that I conducted with my participants. I reworked codes that

did not cohere to this section and revised those codes that were on target with this phase. I then re-read the entire dataset (i.e., the interview transcripts) to decide whether the themes related to the dataset and whether any other themes might have been overlooked from the initial coding. Reviewing and refining codes into themes and sub-themes during this phase allowed me to determine what my different themes were, how they fit together, and the overall story they told. Also, the themes provided me insight into the perspectives of the participants towards their use of CMPR, CMC tools implemented in this study, and their writing self-efficacy after the preparation. Additionally, participants provided their ideas of possible applications of CMPR to facilitate their future classroom instruction. A final thematic map of phase four themes can be seen in Figure 7.

Figure 7

Final Thematic Map, Showing Final Three Main Themes



Phase Five: Defining and Naming Themes. During this phase, a detailed analysis of each theme was developed. The scope, focus, and story of each theme were also identified. Themes that emerged from the data sets (i.e., the interview transcripts) were defined and named. Statements and quotes from the participants relating to the themes were also used to support and refer to them. First, I identified the ‘essence’ (Braun & Clarke, 2006, p. 92) of what each theme was about and what the aspect of each theme represented. Secondly, I organized the consistent accounts of each theme and added the content of the data extracts to include narratives to identify the interests of participants. At the end of this phase, I could clearly identify the scope and content of each theme.

Themes identified from the first four phases were named and defined. They represented the participants’ perceptions on their use of CMPR, the CMC tools implemented in this study, and their writing self-efficacy after the preparation. The overlying phases that emerged were listed as follows: (a) Theme 1 - CMPR Skills defined as pre-service teachers gaining understanding and implementing of CMPR activity, (b) Theme 2 - CMC tools/resources defined as pre-service teachers’ utilizing CMC tools and resources, and (c) Theme 3 - writing self-efficacy defined as pre-service teachers’ writing self-efficacy after CMPR. After the analysis and naming themes in Phase Five, sub-themes emerged and defined: (a) need of CMPR training, (b) writing experience of CMPR activity, (c) peer feedback, (d) convenience of use and appearance, (e) saving resources, and (f) seeking support and issues with technology. The definitions of these themes and sub-themes can be seen in Table 20. They were reported in the cross-case analysis of the participants.

Table 20*Description of Emergent Themes and Sub-Themes*

Theme	Sub-Theme	Description	Participants' statement
CMPR Skills		Pre-service teachers gaining understanding and implementing of CMPR activity	
	Need of CMPR training	Training for pre-service teachers to use CMPR	"I don't know how to give feedback without the prior training. I don't know how to use Zoom features, but I learned them from [the researcher]" (Betty, S1).
	Writing experience of CMPR activity	Pre-service teachers' experience of CMPR implemented in this study	"Having my work reviewed by peer during CMPR was necessary for improving quality of my paper through the peer's perspectives. My peer helped identify errors I could not find on my own and suggested revisions" (Alice, S2).
	Peer feedback	Peer feedback given and received by pre-service teachers	"My peer gave me detailed feedback that I understood clearly. Her feedback was constructive and

Theme	Sub-Theme	Description	Participants' statement
CMC Tools/Resources		Pre-service teachers' utilizing CMC tools and resources	useful for my paper" (Betty, S1).
	Convenience of use and appearance	Usability of CMC features (i.e., Word Track Changes and Comments, Zoom, email	" <i>Word's</i> Track Changes and Comments was super helpful and convenient to use" (Nancy, S4)
	Saving resources	Suitability of resources and time with the internet and lack of cost of traveling (i.e., gas) and paper	"I think using the tools like the computers, <i>Word</i> , and Zoom helped save time from traveling to meet the peer(s) in person. We didn't need to pay for gas, but only the internet, and we didn't have to waste our money on paper, pens, and highlighters" (Betty, S1).
	Seeking support and issues with Technology	Pre-service teachers seeking help with CMC tools, previous and current instructional materials, and writing with technology (i.e., Grammarly, Google Translate)	"I also used Google Translate to translate all new vocabulary Nancy suggested me to revise to see if they fit in my context before I used them" (Tara, S3).

Theme	Sub-Theme	Description	Participants' statement
Writing Self-Efficacy		Pre-service teachers' writing self-efficacy after CMPR	"I feel more confident that I am able to grade my future students' papers now" (Tara, S3).

Phase Six: Producing the Report. During this final phase, the report of the thematic analysis was documented to tell the story of the four participants and provide the validity of data analysis. I wrote the report that included an analytic narrative, telling the story and providing evidence and examples of the importance of allowing pre-service EFL teachers to experience online writing activities using CMPR and CMC tools (i.e., *Microsoft Word's* Track Changes and Comments, Zoom, Email) in their teacher preparation program. With these writing opportunities, pre-service EFL teachers will be able to apply the knowledge and practices in their future classrooms. Also, I used the 15-point checklist applied from Braun and Clarke (2006) to determine whether the thematic analysis that I generated was strong. The checklist can be seen in Table 21.

Table 21

A 15-Point Checklist for Thematic Analysis

Process	No.	Criteria
Transcription	1	The data were transcribed with detail; the transcripts were checked against the audio tapes for accurate findings.
Coding	2	All data items were given equal attention during the coding process.
	3	Themes were not generated from a few vivid examples; However, the coding process were thorough and comprehensive.
	4	All relevant extracts for each theme were collated.

Process	No.	Criteria
Analysis	5	Themes were checked back to the original data set and against each other.
	6	Themes were logical, consistent, and distinctive.
	7	Data were analyzed and interpreted beyond a description or rephrasing.
	8	Analysis and data were compatible; the extracts illustrated the analytic claims.
	9	Analysis told a well-organized, convincing story about the data and topic.
	10	Analytic narrative and descriptive extracts were provided.
	11	Sufficient time was allocated to complete all phases of thematic analysis.
Written report	12	Thematic analysis approaches were clearly explained in detail.
	13	The described method and reported analysis were consistent.
	14	The concepts and language used in the report were consistent with the epistemological position of the analysis.
	15	The researcher was active in the research process, and themes did not just appear.

Note: Adapted from Braun and Clarke, 2006.

Case-by-Case Analysis

In this section, I provided the case-by-case analysis of my participants' responses in their interviews regarding their perceptions towards CMPR, CMC tools, and their writing self-efficacy after the preparation. A description of each participant was presented. Criterion sampling was used as a purposive sampling strategy to select my participants. The four female participants who met the inclusion criteria were purposively chosen from a writing class of 34 students. Their writing teacher helped me with the recruitment. The inclusion criteria for participation selection were: the student must (a) be a second-year English major attending a four-year English program in Faculty of

Education at a university in Northeastern Thailand, (b) be a Thai native speaker, (c) learn English as a foreign language, (d) have enrolled in the university's elective course called Writing Techniques for the first semester of academic year 2020-2021, (e) not have previous CMPR experience using *Zoom* and *Microsoft Word's* Track Changes and Comments prior to the study, (f) be over the age of 18, (g) agree to be video recorded, and (h) be willing to participate in the study. They were also pre-service teachers in the teacher preparation program and aspired to be a teacher after graduation. When I conducted this research study, I worked as an instructor at this university and was on my fourth year of study abroad leave. Therefore, I did not personally meet and teach the participants prior to this study. The participants were informed about this research study from their writing instructor who assisted with the participant recruitment and voluntarily participated in this online writing experience. This study was conducted during the beginning of the COVID-19 pandemic, so it was considered good timing as the students did not have any online learning experience before.

My initial plan to collect data in this study was administered in a parallel fashion outside of the writing class hours during the first semester of 2020-2021. This would probably provide an opportunity for the students (i.e., the participants) to ask questions, share their concerns, and discuss about my study with their writing instructor. My dissertation committee suggested that I interview the instructor at this point hoping to gain supplemental data from his perspective. However, due to the pandemic, this data collection plan was altered due to the pandemic which caused the school to be closed for over a month. This forced instructors to provide intensive courses and make up their classes in order to finish their courses and prepare their students for the final exams.

Therefore, my data collection did not begin until nearly the final week of classes, and there was no interaction between the participants and their writing instructor during this period of time.

When writing their first draft, the participants were told that the draft did not need to be perfect. They were not allowed to copy other people's work, and instead they must present their original work with the writing process. According to the pre-questionnaire results, the participants reported that they had never been taught the writing process and how to write an essay in English. Therefore, I encouraged this opportunity to genuinely learn how to write a five-paragraph essay and the writing process starting from pre-writing activities to writing their final draft. They should be proud of creating this piece of work. When reviewing their peer's first draft alone (i.e., before the peer feedback discussion), the participants were told that they could use previous and current instructional materials/handouts, online dictionary, grammar books, and other sources to help. This was to see what sources the participants used to support during CMPR. The participants' interview information can be viewed in Table 22.

Table 22

Participants' Interview Information

Participant	Status	Gender	Interview location	Type of Computer	Date and time	Length of interview
Betty	Student	Female	Zoom, Her Dorm	Laptop	11/30/20 10:00 AM (Bangkok)	32 mins
Alice	Student	Female	Zoom, Her Dorm	Laptop	12/01/20 08:30 PM (Bangkok)	30 mins
Tara	Student	Female	Zoom, Her House	Laptop	12/5/20	43 mins

Participant	Status	Gender	Interview location	Type of Computer	Date and time	Length of interview
Nancy	Student	Female	Zoom, Her House	Laptop	07:30 AM (Bangkok) 12/5/20 09:30 AM (Bangkok)	34 mins
Chai	Teacher	Male	Zoom, His House	Laptop	12/7/20 09:30 PM (Bangkok)	25 mins

Betty. Betty was my first participant that I interviewed. The Zoom interview duration lasted 33 minutes. Betty was active and usually the first person to show up on Zoom and submit homework that I assigned during the CMPR training and activity. She had zero knowledge or experience with Zoom or *Microsoft Word's* Track Changes and Comments prior to this study. During the interview, she reported that she was nervous about joining my first Zoom meeting. Even though I emailed her the step-by-step instruction of joining Zoom, she sought help from her sister and friend from another college. This could be a result from her lack of technological knowledge causing anxiety. Betty was randomly paired with Alice during the CMPR practice. They were later paired again randomly during the CMPR activity where they took turns reviewing each other's first draft and giving feedback and comments while I acted as an observer/facilitator. They looked joyful working together again.

When asked how long it took to review and give feedback to Alice's work before their Zoom discussions, Betty said she spent about three hours alone working on reviewing Alice's first draft using *Microsoft Word's* Track Changes and Comments, the peer review sheet with grammar checklist, and the writing rubric. She said it took time to familiarize herself with the CMPR documents and process, and that this was the first time

she reviewed her peer's work through CMPR after the training and practice with the essay samples. Betty compared her dedication and time spent on reviewing Alice's work to Alice's own dedication and time spent, and determined that Alice worked harder, and she should have done better. She stated that Alice spent about five hours reviewing her work, providing detailed feedback, and doing a perfect job. From my observation, they both did a great job reviewing each other's work regardless of the amount of time spent on it. When asked how she felt when rating Alice's first draft, Betty said it was a little hard at first, but the holistic scoring rubric made grading easier.

During the interview, Betty stated the lack of CMPR skills and the need of preparation to be successful in CMPR and in the use of *Zoom* and *Microsoft Word's* Track Changes and Comments, which were the CMC tools implemented in this study.

I don't know how to give feedback without the prior training. I don't know how to use *Zoom* features, but I learned them from [the researcher] and and I asked my sister and a friend from another college to teach me how to join *Zoom* my first *Zoom* meeting. Now I am able to use *Word* Track Changes and Comments tools after being taught. I have learned the writing and feedback skills I need to improve my essay ideas. I completely understand *Word's* Track Changes and Comments after training. I wish I could have learned this writing activity earlier. I'm like I'm surprised by lots of errors I made and peer feedback received from the peer on my 1st draft and I know the peer makes errors too (Betty, S1).

With regard to her writing experience of CMPR, Betty said she liked the activity. She found it useful for her paper as it provided her an opportunity to learn new vocab and word choices from the peer and the researcher. Betty thought CMPR was also useful for identifying errors she could not find in her own work and provided skills necessary for future teachers.

"I found the CMPR activity useful for my paper. I learned new vocab and word choices from the peer and and the researcher via CMPR" (Betty, S1)

"I liked CMPR and found it useful and necessary for future teachers" (Betty, S1)

Betty felt positive with giving and receiving peer feedback as it allowed her to understand her errors through peer comments and peer feedback discussions. Receiving detailed, constructive, and useful feedback from the peer with explanations helped Betty improve the quality of her work. Additionally, she found the peer feedback helpful for improving her writing ability, particularly the ability to organize her ideas logically.

“My peer gave me detailed feedback that I understood clearly. Her feedback was constructive and useful for my paper” (Betty, S1).

“I learned how to organize ideas logically from the peer feedback. I found it helpful and necessary for improving the quality of my work and my writing ability” (Betty, S1).

“I understood my errors more through the peer comments on the draft and peer feedback discussions” (Betty, S1)

Regarding the CMC tools (i.e., *Microsoft Word*'s Track Changes and Comments and Zoom), Betty reported during the interview that she liked to use the computer (i.e., *Microsoft Word*) when writing essays in English. She found making comments and replying to them via *Microsoft Word*'s Comments easier than via the traditional paper and pen. She felt handwriting feedback was a waste of time. Using *Microsoft Word*'s Comments and Track Changes allowed her to give immediate feedback. They were convenient to use, and the feedback and comments looked organized, clean, and easy to read. She particularly liked *Microsoft Word*'s Comments and Zoom annotate which had tools needed for providing, receiving, discussing, and clarifying peer feedback such as highlighters, which she did not need to buy. She said she sometimes felt confused reading highlighted texts in different colors on the traditional paper-pen feedback. It looked messy compared to the feedback from *Microsoft Word*'s Comments.

Betty raised a good point regarding the use of color when giving feedback via the traditional way. However, in this study, all basic use of *Microsoft Word*'s Comments and Zoom features (e.g., annotate and chat) were taught to observe how the participants used them individually after the training, so the issue with the use of different colored texts by participants was not the focus of the study. However, it is recommended future studies examine the effect of colors when used in peer's written revisions and reactions.

I liked to use computer when writing essays in English. I think it was easier. I found *Word*'s Track Changes and Comments convenient tools after being taught via the training. They made giving feedback on peer's work and replying to it easier. I don't have to waste my time to handwrite the feedback. I am able to give immediate feedback and reply to peer comments immediately. The feedback looked organized and clean. I don't see any issues with unreadable handwritten texts when receiving comments/feedback via *Word*. I used to get confused when reading paper-pen feedback highlighted in many different colors sometimes" (Betty, S1).

"*Word*'s Comments and annotation tools were my favorite. They were convenient and had everything I needed to use when clarifying the feedback during the peer feedback discussion, like the highlighters" (Betty, S1).

Betty felt doing peer review via Zoom (i.e., CMPR used in this study) was more convenient than via face-to-face even though she never had peer review experience before. Zoom allowed her to see the face(s) of peer(s) and the papers screenshared by her and her peer(s). It also allowed her to interact, share ideas, knowledge, and feelings, as well as discuss the shared papers with peer(s) and vice versa. They could work on the paper collaboratively anywhere anytime via Zoom. She thought Zoom was the most important part during CMPR which helped her understand and clarify the step-by-step instructions of CMPR by me. She pointed out that it was likely to feel confusing to use *Microsoft Word* without Zoom during CMPR.

For me, doing peer review via Zoom was more convenient than via face-to-face.

Everyone could see the faces of peers and the paper that was shared synchronously. We were able to share ideas, knowledge, and feelings and discuss the paper with peers anywhere anytime via Zoom. I think Zoom was the most important part during CMPR because it helped me understand the CMPR process [and] clarify the instructions step-by-step. It would be confusing to use *Word* without Zoom when doing CMPR (Betty, S1).

In addition to the convenience of use and appearance of the CMC tools, Betty thought using the CMC tools helped save resources (i.e., time, cost).

I think using the tools like the computers, *Word*, and Zoom helped save time from traveling to meet the peer(s) in person. We didn't need to pay for gas, but only the internet, and we didn't have to waste our money on paper, pens, and highlighters (Betty, S1).

Other online sources were used to help in the peer review writing process. Betty reported that she used Google Translate to help when selecting English words because she sometimes thought in Thai and then translated it into English. She also used this tool to translate unknown words found on the peer's paper to help her understand them. She mostly used Grammarly to help check grammar on her and her peer's work. She found it helpful for identifying errors and providing useful feedback. However, she usually re-checked them before use as some feedback from Grammarly misinterpreted what she or her peer was trying to say.

When I wrote my paper, I used Google Translate to help select words. I liked to think in Thai first then I typed Thai words on Google Translate to get English words. I sometimes didn't know the English words I got from Google or wasn't sure if they were used properly, so I checked them with the Translate again. It was like Thai to English and English to Thai. I used Google to translate unknown words my peer used in her essay too. I used Grammarly to help check grammar mostly when I reviewed the peer's work and my work. It helped point out errors and gave useful feedback, but I didn't use all of it. Some feedback just didn't apply. It changed the meaning of the sentences from my peer or my paper, so I usually re-checked feedback before use (Betty, S1).

During the interview, Betty showed an increasing writing self-efficacy after the CMPR training. Although she was glad that she received positive feedback from her peer, she did not agree with all the feedback.

I'd like to have feedback from both peers and teachers for my future writing classes. I think feedback from peers with similar levels of English proficiency may help some, but not as much as from teachers. So, I would want both. I felt glad when receiving positive feedback or praise from my peer. But, I ignored some peer feedback that I did not agree with (Betty, S1).

Betty reported issues regarding promptness and availability of a peer (i.e., Tara) during the CMPR training, which required all four participants together, and activity outside classroom. In the first training session (out of three), Tara was 30 minutes late, was 10 minutes late in the second training session, and was on time in the last session. Each session lasted approximately between three hours and three hours and a half. Betty, Anna, Nancy, and I had to wait for Tara until she showed up to begin the training sessions. This was something I need to bear in mind and add to “the rules for our learning community” that everyone agreed with during the orientation before starting the training for a future use of CMPR. This is to raise the participants’ awareness of punctuality required for Zoom and other online meetings. Betty also reported an issue about the peer’s availability before started the CMPR activity, which took a long time to finalize the schedule. This was the pair activity where each pair had to schedule a meeting with me, as an observer/facilitator, to do the CMPR via Zoom after the preparation.

In addition to the issues with promptness and availability that peers had, Betty reported issues with technology that peers had during CMPR. She said Tara sometimes had slow internet connection and problems with her camera and sound due to Zoom and computer settings, and Alice (i.e., Betty’s pair) was unable to send her paper via Zoom

chat because of her use of outdated version of Zoom and old version of Microsoft Office *Word*. Students in Thailand often used outdated and unlicensed Microsoft Office products. Apparently, these two students experienced the technological issues caused by their lack of technological knowledge and skills.

Tara had bad internet connection sometimes. Her camera and sound didn't work. She had to do something with settings on her computer and Zoom and Alice was unable to send her paper to me via Zoom chat, so she screenshared it instead. She said she used old versions of *Word* and Zoom and didn't update them (Betty,S1).

Overall, Betty had an excellent writing experience with CMPR. She liked it and felt positive and comfortable with giving and receiving the peer feedback. Also, she found CMPR useful for improving her knowledge and skills of the five-paragraph essay writing and the quality of her paper.

Alice. Alice was my second participant that I interviewed. The Zoom interview duration lasted 30 minutes. Alice was an outstanding student in her cohort. Alice was active and always the first person to show up on Zoom and submit homework that I assigned during the CMPR preparation and activity. From my observation during CMPR preparation and activity, considering her paper quality, Alice's English writing skills and grammar knowledge were superior to the other participants, so she was able to complete tasks assigned well. Therefore, her final draft looked complete with minimal errors.

Alice had a previous experience with Zoom once with her friend to test her camera. Her participation in Zoom discussions during this study was her first-time using Zoom for instructional purpose. However, she was one of the two participants who had issues with technological tools. Alice had zero experience and knowledge with *Microsoft Word's* Track Changes and Comments prior to this study. Alice was randomly paired with Betty during the CMPR training and practice and during the CMPR activity where

they took turns reviewing each other's first draft and giving feedback and comments. They looked joyful working together again.

During the interview, Alice reported that, before the peer feedback discussions via Zoom, she spent about five hours alone working on reviewing Betty's first draft using *Microsoft Word's* Track Changes and Comments, the peer review sheet with grammar checklist, and the writing rubric. She stated that she enjoyed reviewing Betty's work and providing detailed feedback. I felt she was on track and had a sense of being a good writing teacher at this point. Although it was her first time reviewing the peer's work via CMPR or FFPR, Alice did a great job as a peer reviewer.

Alice had positive feelings with CMPR. She reported that CMPR was useful and necessary for improving quality of her work through perspectives of the peer who helped identify errors she could not find by her own and suggested how to revise them. She stated that the CMPR preparation and activity allowed her to familiarize herself with the CMPR documents and process, and that increased her confidence to use them in the future. The CMPR preparation also increased her knowledge of English grammar and the five-paragraph essay structure that improved her writing abilities.

I gained confidence in using the peer review documents without confusions after being trained. It helped a lot. I learned, understood, and familiarized the essay structure through practices. I was able to identify its parts and what was missing without having to look back at the peer review sheet. The peer review sheet helped improve the quality of my work. The scoring rubric was easy to use, so I was able to rate my peer's work appropriately using it (Alice, S2).

Having my work reviewed by peer during CMPR was necessary for improving quality of my paper through the peer's perspectives. My peer helped identify errors I could not find on my own and suggested revisions (Alice, S2).

The grammar knowledge taught during the training was very useful and it improved the quality of my work. But, even with this knowledge and my existing grammar knowledge, I still made a lot of grammatical errors on my first draft. (Alice, S2).

Alice indicated that she extremely enjoyed this CMPR writing experience and realized the usefulness of technology not only for people working in teaching career but also others. She also intends to adapt and apply the CMPR activity to her future classroom. Alice believes FFPR can be replaced by CMPR with the availability of laptop or desktop, computer software, and internet.

I think CMPR was a useful, practical, and necessary activity for future teachers. It increased clarification of work and improved the quality of work after being reviewed. I feel the use of technology in CMPR like *Word* was useful for people not just in teaching career but others too (Alice, S2).

I would apply what I learned from this CMPR writing experience to improve my own work and give comments on students' work in the future. Actually, I gained lots of ideas to use *Word* or/and Zoom to review students' work or projects other than CMPR (Alice, S2).

I think [FFPR] can be replaced by CMPR with the availability of internet and all required equipment (Alice, S2).

Alice also indicated that, after the preparation, her ICT skills improved. She felt more confident in using *Microsoft Word's* Track Changes and Comments and Zoom features, which were the CMC tools implemented in this study.

I was able to use *Word's* Track Changes and Comments to make in-text revisions, add comments on the right of peer's paper, and track changes via the training. I was also able to use Zoom features like annotate and chat to discuss and make clarifications on paper during the peer feedback discussion (Alice, S2).

Alice reported that she strongly liked the use of the CMC tools, *Microsoft Word's* Track Changes and Comments, and Zoom during CMPR. She indicated that the tools were more convenient, saved travelling time and costs, and was less-time consuming than via face-to-face even though she never had CMPR or FFPR experience before. The peer discussions via Zoom were less-time consuming, increased clarification of work, and improved the quality of work after being reviewed. Alice also plans to teach her

classmates who did not participate in this current study to use *Microsoft Word's* Track Changes and Comments and Zoom, so that they could collaborate on their assignments faster. She also plans to use Zoom to communicate with peers more even not for instructional purpose

I think both *Word* and Zoom were important and compatible for CMPR. *Word's* Track Changes and Comments allowed me to make revisions on drafts. Zoom allowed me to see my peer's work and discussed peer feedback from home or anywhere regardless of distancing. I didn't need to travel to meet peers to do this in person. I was able to discuss and make clarifications about comments and paper via *Word* and Zoom. They were convenient and less-time consuming. I think using *Word* alone could get work done but working collaboratively with peers without Zoom could be delayed and time-consuming (Alice, S2).

I would like to teach my classmates to use *Word's* Track Changes and Comments and Zoom, so that we could work on group projects more collaboratively and faster. I would use Zoom to talk with peers outside of instructional activities (Alice, S2).

When reviewing Betty's first draft, Alice used both online and physical resources to support. She reported that she used the teaching documents gained from the CMPR preparation and *Microsoft Word's* spelling and grammar check as tools to help when providing peer feedback. She also used an online and book dictionary to help look up meanings of unknown words to translate them and their use in contexts.

I used *Word's* spelling and grammar check and the teaching documents received from the CMPR training to help when I gave feedback to my peer. I used a dictionary too, both online and book, to translate and look up meanings of unknown words and their use in contexts (Alice, S2).

Although Betty's English language skills were superior to other participants, she had positive attitudes with peer feedback. She opened her mind and learned to improve her work through peer feedback. Betty reported that, when providing peer feedback, she rewrote some sentences that did not make sense, had wrong meanings influenced by their

first language (i.e., Thai), and were off topic for peer as options. Alice used the peer feedback and comments as an option to revise her work. She considered the correctness and appropriateness of recommended revisions before deciding whether to use them. Alice followed the peer feedback that guided content and the five-paragraph essay structure as she was able to self-correct her own grammatical errors. Alice indicated that the peer feedback received during CMPR improved skills and structural knowledge of writing a five-paragraph essay most. The peer's ideas were useful. I used some of them that fit in my context to revise my work.

Alice reported issues with technology that she experienced during CMPR. She stated that she was not sure why she was unable to send a file of her first draft via Zoom chat or respond to peer comments via "reply." In *Microsoft Word's* Track Changes and Comments, she noticed her computer screen looked different from the other peers. After an inquiry, I found that her issue was due to her application of outdated versions of Zoom and unlicensed *Microsoft Office*. Alice was the only participant who did not have her computer software updated. This could be due to her lack of computer skills, it could be that she used a school computer when assigned to complete teachers' assignments that required *Microsoft Word*, or it could be that teachers' assignments were done traditionally. However, she managed to solve these issues herself by emailing the draft to the peer and replying to the peer comments by making a new comment in the next line below it. Although Alice was able to find the indirect solutions to the software issues and complete the assigned tasks like the other participants, her lack of technological skills should be further studied. Another issue Alice had during CMPR was a slow internet connection.

I felt that I had more tech issues than the others. I was able to use annotate (e.g., text, chat) and other Zoom features to help during the peer feedback discussion, but I wasn't able to send a file via Zoom chat. I used email instead. I was also able to accept/reject the peer comments, but wasn't able to respond to peer comments via "reply" due to having old version of *Word* I guess. I felt little confused as my computer screen wasn't like the other peers.' I fixed this issue by making a reply to the peer comment by making a new comment in the next line below it (Alice, S2).

"My internet lagged a few times, so I didn't completely understand what my peer was trying to clarify or explain about my paper" (Alice, S2).

Another issue Alice had during CMPR was with confusion in assignments due to peer's re-scheduling and handling many CMPR documents. The CMPR documents were introduced during the CMPR orientation, the CMPR preparation, and the CMPR activity (i.e., where Alice reported confusion) to familiarize the participants. Her confusion might be from my use of English terms typed in each document heading and named by me (i.e., the peer review sheet, the grammar checklist, the writing rubric, first draft, second draft, and final draft). The other documents such as essay samples and PowerPoint slides were not included in the assignments and were not submitted. Even though I gave a list of documents required for each assignment, Alice and the other peers often asked for clarification (e.g., Did you mean this one?). Apparently, they were not completely familiar with the names of the CMPR documents even though they liked using them and found them useful for reviewing peers' work. It is recommended future research use numbers, together with English names, to avoid confusing participants (i.e., pre-service EFL teachers) and allow them to practice with the CMPR documents more often. It took time for them to familiarize English terms used, and together with other documents such as essay examples.

Overall, Alice had an excellent writing experience with CMPR. She enjoyed it and felt positive and comfortable with providing and receiving the peer feedback. Also, she found CMPR useful for improving her English knowledge and skills, particularly the five-paragraph essay writing structure, and the quality of her paper. Alice had a strong willingness to use CMPR with her peers, classmates, and the students in her future classroom.

Tara. Tara was my third participant that I interviewed. The Zoom interview duration lasted 43 minutes, which was longer than the other participants. This delay was caused by her slow demonstration due to her lack of fluency of the use of Zoom and *Microsoft Word's* Track Changes and Comments (i.e., the CMC tools implemented in this study). All participants were requested to demonstrate how they used the CMC tools to provide and receive peer feedback during the interview. Tara engaged all CMPR activities and completed all assignments, but she was not as active as the other participants. Tara was always the last person to show up on Zoom and usually the last person to submit homework that was assigned during the CMPR training and activity. She often delayed our group training sessions.

From my observation during CMPR, Tara experienced issues regarding her lack of punctuality and technological knowledge and skills. Tara showed up in my first Zoom meeting late while the other participants already joined. She used her new headphones and camera, but they had not been set up yet. Her camera and microphone did not work, and she struggled with the settings. Therefore, I encouraged her to use the chat feature of Zoom to communicate with us during our first meeting and prepare the tools to be ready

for the next session. The first session began 30 minutes late due to Tara's lack of punctuality and technological knowledge and skills.

Also, the quality of her peer feedback and comments provided on Nancy's (i.e., Tara's peer during CMPR) first draft was not impressive. The quality of the feedback made me a little disappointed for Nancy as most of the comments Tara used were copied exactly from an online resource (i.e., Grammarly) and pasted on Nancy's draft without additions. They were too long, too detailed, and too many. Tara should have used these recommended revisions to guide her when giving peer feedback instead of just copying and pasting them. However, during the peer feedback discussion with Nancy via Zoom, Tara did a good job clarifying her recommended revisions. Tara was the only participant who used the copy-paste method when providing the peer feedback, and she felt a little embarrassed when asked to explain how she gave the peer feedback during the interview. Nevertheless, she reported no issues regarding providing and receiving the peer feedback during CMPR.

“I didn't have any problems when giving feedback on my peer's work. We both agreed to each other's comments and no barriers were found during giving or receiving peer feedback” (Tara, S3).

Tara's use of the copy-paste method from Grammarly for feedback (i.e., plagiarism) could mean that her grammar and vocabulary knowledge was insufficient to review the peer's work, it could be that she was not confident in providing her own peer feedback, or it could be that she did not realize plagiarism, which was taught during the CMPR preparation, was unacceptable.

Tara had zero knowledge or experience with Zoom or *Microsoft Word's* Track Changes and Comments (i.e., the CMC tools implemented in this study) prior to this study. During

the interview, in addition to these CMPR tools, Tara stated that she had previously never used *Microsoft Word's* grammar and spelling check when writing papers in English. She found the feature helpful and thought that she should have learned to use it to help correct her grammar and spelling earlier. Her lack of basic knowledge and experience regarding the use of *Microsoft Word's* grammar and spelling check could mean that she had rarely been assigned to write papers in English using *Microsoft Word Document* and had never been taught to use the basic *Microsoft Word's* feature to improve the quality of her work. It is suggested that writing instructors guide EFL students basic *Microsoft Word* features that support their English writing (e.g., *Microsoft Word's* grammar and spelling check) and assign them to write more using *Microsoft Word Document*.

Tara had a positive feeling toward the CMPR preparation and activity (i.e., CMPR). During the interview, Tara reported that CMPR provided her opportunities to learn and improve her work through the peer's perspective, provide constructive feedback, and grade the peer's work. She also stated that she learned new grammar knowledge, how to write a thesis statement, and felt that her word choices and grammar knowledge improved via CMPR.

“I learned new grammar knowledge I never learned before like the use of a comma before FANBOYS. Also, I learned how to write a thesis statement” (Tara, S3).

The CMPR writing experience made Tara feel more confident to grade her future students' papers. Additionally, CMPR allowed her to learn to use *Microsoft Word's* Track Changes and Comments and be able to use them more fluently.

I learned how to give and receive peer feedback effectively through CMPR. Nancy reviewed my work and identified errors on my original draft. She gave comments and made changes on my draft too. I learned useful ideas from her and

used them to improve my work. I feel more confident that I am able to grade my future students' papers now (Tara, S3).

"I feel that I could use *Word's* Track Changes and Comments more fluently after CMPR" (Tara, S3).

However, when asked to demonstrate how she provided and received the peer feedback step-by-step using the CMC tools, Tara forgot how to use some features of *Microsoft Word's* Track Changes and Comments. This took her awhile to recall it and delayed the interview. Therefore, I guided her until she completed the demonstration during the interview. Also, Tara reported that she rarely used Zoom annotate tools when discussing the peer feedback. She only used the lines feature to identify in-text feedback but did not use chat, highlighter, or other Zoom features to help during the peer feedback discussion. Although Tara felt more confident and fluent in using the CMC tools, she needed more practice to be able to actually use the CMC tools effectively and fluently.

I didn't use the chat feature to send or receive a file from peer during Zoom discussions. I also didn't use other annotate tools like highlighter. But, I only used lines to help identify in-text feedback during Zoom discussion (Tara, S3).

Tara indicated that the CMPR documents (i.e., the peer review sheet, the grammar checklist, and the holistic writing rubric) used during the CMPR preparation and activity were helpful. They helped guide and make reviewing peer's work easier, and they improved her knowledge and skills of grammar, vocabulary, and the five-paragraph essay structure. In this study, all participants were required to use the CMPR documents to guide themselves when reviewing their peers' work and submitted them with their first drafts after completion. This requirement was to increase abilities of the participants (i.e., pre-service EFL teachers) to provide feedback more reliably and professionally.

When I reviewed Nancy's work, I used the peer review sheet to check if the essay organization used in her work was complete, and if there's something missing, I

gave her feedback. I also used the grammar checklist to guide and help identify errors on Nancy's paper. They were helpful, and I learned grammar, vocabulary, and the essay structure from them too (Tara, S3).

Tara reported that she strongly liked to use Zoom and *Microsoft Word's* Track Changes and Comments (i.e., the CMC tools) implemented in this CMPR study. They were compatible and important for successful CMPR and compared their functions to other social media platforms (i.e., FaceTime and Line video calls) to advocate them. In addition, Tara indicated that she preferred CMPR over FFPR and would like to apply them to her future classrooms. She found Zoom was convenient to use, less-time consuming, and saved resources (i.e., gas, money, and time). Tara stated that peer feedback and comments typed via *Microsoft Word Document* were easier to read than those handwritten via a traditional paper and pencil method.

I thought both Zoom and *Word's* Track Changes and Comments were compatible and important for successful CMPR. I thought their functions were similar to Facetime and Line video calls in smart phones but were not able to screenshare files and make changes on paper via smart phones (Tara, S3).

I preferred online peer review via Zoom because it was very convenient to use. I didn't need to travel and carry the paper to meet my peer in person to work together. We just scheduled a meeting via Zoom that worked for us or anytime we wanted. I also liked feedback and comments typed via *Microsoft Word Document* more than the ones via paper and pencil. They were easier to read. I would definitely use Zoom and *Word* in my future classrooms (Tara, S3).

Tara had a positive feeling towards providing and receiving the peer feedback. She indicated that the peer feedback and comments received during CMPR was useful for her work, and most of them were mainly about grammar and vocabulary. She also stated that she paid her attention to every peer feedback and comments that she received and accepted those that agreed with her work.

Peer feedback and comments that I received from Nancy were mostly about grammar and vocabulary, and they were very useful for my work. I read all of

them but didn't use all. I didn't accept the ones that interpreted my work wrongly (Tara, S3).

Tara reported that the peer feedback she provided on Nancy's first draft focused mainly on grammar. She felt there was no need to correct Nancy's use of word choices because Nancy had already used concise words. During the peer feedback discussion, Nancy and I were impressed by Tara's use of word choices on her paper such as the words spread, infection, and outbreak. When asked during the interview, Tara stated that she learned these words from readings but had never used them before. Therefore, participating in the CMPR study provided Tara the opportunity to use them.

"I used some academic vocabulary such as spread, infection, and outbreak in my first draft. I found these words from readings but never used them before" (Tara, S3).

Tara also reported that the Zoom discussion was useful as it allowed her to make clarification about her paper as Nancy sometimes misinterpreted her work. She found that after the Zoom discussion, Nancy and she had no longer misunderstandings about each other's work. When asked how much peer feedback Tara used to revise her first draft, she indicated that she was not sure about it.

In addition to receiving peer feedback, Tara indicated that she benefitted from the writer-researcher conference because it allowed her to understand the areas that needed to work more. During the 30-minute writer-researcher conference (i.e., Tara and me), I helped her with ideas to rewrite her work rather than focusing on the quality of her feedback and comments provided to the peer (i.e., the purpose of the conference) like I did during my meeting with Betty and Alice. Tara's first and second drafts were off topic because she did not provide a thesis statement, and her peer feedback was not helpful. Although Nancy commented on Tara's draft that there was no thesis statement and wrote

it for her as an option, Nancy's option was off task too. Her thesis statement was about basic self-defense and how to prevent COVID-19, but the topic was "How do you relax yourself during COVID-19?" Therefore, during the conference, I reviewed the essay structure from the pre-writing activity of the preparation, gave her an example of thesis statement, and assigned her to rewrite according to my feedback and submit it as her final draft. Tara's final draft looked good and was no longer off-task. Apparently, Tara and Nancy needed more of teacher feedback regarding global area (e.g., idea development and organization of writing) than Betty and Alice did. Also, the writing cycle used in this study might not fit all participants' needs due to individual differences (e.g., previous essay writing experience in both Thai and English) and other factors.

"After the writer-researcher conference, I understood the areas needed to work more and realized I was in the process of improving my writing" (Tara, S3).

Regarding the use of resources to support during CMPR, Tara reported that she used both online resources (i.e., Grammarly, Google Translate, and an online dictionary) and a physical resource (*Microsoft Word's* Grammar and Spelling Check) when reviewing Nancy's first draft. Tara indicated that she read the peer's draft to identify grammatical errors. When she was not certain about the errors, she used Grammarly to ensure proper use of grammar. She stated that not all feedback and comments from Grammarly (e.g., tense) were used as she considered them before use. Tara also utilized suggestions from *Microsoft Word's* Grammar and Spelling Check and revised the peer's work accordingly. She found this *Microsoft Word's* feature helpful for identifying grammatical errors and misspellings on her and her peer's drafts. When reading the peer's work, Tara used an online dictionary to help find meanings of unknown vocabulary and revised words to make them sound more academic.

When reviewing the peer's work (i.e., the CMPR activity), I read her draft to identify grammatical errors. If I wasn't sure her use of grammar was correct, I double-checked with Grammarly. I didn't use all feedback and comments from Grammarly as some feedback like tense didn't apply. I also used *Word's* Grammar and Spelling Check, and I used its suggestions to help revise the peer's work. They were really useful. I looked up unknown words from an online dictionary too, and I changed some words to sound more academic (Tara, S3).

She also used Google Translate to translate ideas/messages Nancy were trying to say to ensure her messages were sent correctly. Tara also used this tool to translate new/unknown vocabulary recommended by her peer before she decided whether to use them.

"Google Translate helped me check if Nancy's ideas/messages were sent correctly as expected. I also used it to translate all new vocabulary Nancy suggested me to revise to see if they fit my context before I used them" (Tara, S3).

During the interview, Tara reported issues found during CMPR. She shared the issue regarding the use of old version of *Microsoft Word* that Alice had and having to reschedule with me a few times due to the participants' unavailability. Like Alice who was confused by English terms named the peer documents, Tara was confused with the terms first draft and second draft. This confusion led me to think they never or rarely had prior English writing experience, and that supported the pre-questionnaire results. However, Tara did not have issues regarding internet connection as the other participants.

"I wasn't sure which draft was first draft and second draft. It was confusing" Tara, S3).

Tara strongly believed that the use of technology in writing instruction was important and should be integrated in writing courses because she found that it made writing easier, and that writing instructors should integrate technology in their classrooms. She shared her classroom observation experience during her field practicum in a local school that online technology was generally used to facilitate classroom

instruction in the school. Tara plans to continue to use CMPR as she found it effective in English writing improvement. She plans to use Zoom and *Microsoft Word's* Track Changes and Comments for revising papers of others and evaluating their work. Also, she plans to integrate online technology to facilitate her future classroom instruction.

I think technology was important to writing instruction. It made writing easier. I'd like to continue to use CMPR because it can help revise work. I'd like to use technology to replace traditional writing on blackboard. She to the generally used online technology in facilitating instruction during her classroom observation for field practicum (Tara, S3).

Nancy. Nancy was my last participant that I interviewed. The Zoom interview duration lasted 34 minutes. Alice was somewhat/neutrally active and usually the first person to show up on Zoom but always the last person to submit homework that I assigned during the CMPR preparation and activity. Like Alice, Nancy had a previous experience with Zoom once, but her participation in this study was her first-time using Zoom for instructional/academic purpose. Nancy was randomly paired with Tara during the CMPR preparation and activity where they took turns reviewing each other's first draft and giving feedback and comments. Like Tara, Nancy's second draft needed more work because her thesis statement was not concise enough, so I helped revise/tailor her content and writing organization during the writer-researcher conferencing.

Nancy had a positive feeling with CMPR. She reported that CMPR was helpful for improving quality of her work through perspectives of the peer who helped identify errors she could not find on her own. It was better than working alone. Nancy stated that CMPR allowed her to learn that her work was not great as she thought after being reviewed by the peer. Also, the peer feedback and comments received during CMPR were extremely useful. Nancy indicated that the CMPR writing experience was eye-

opening as it allowed her to learn using technology to facilitate writing instruction to improve quality of papers and make providing and receiving feedback easier.

Nancy stated that the CMPR preparation and activity allowed her to familiarize herself with the CMPR documents (i.e., the peer review sheet, the grammar checklist, and the holistic scoring rubric) and the process. She reported that the peer review sheet was extremely helpful to guide when reviewing the peer's work. Without it, she was not able to criticize the peer's work other than just grammar issues. The peer review sheet allowed Nancy to review content and the organization of essay writing. Like the peer review sheet, Nancy found the grammar checklist extremely helpful to guide during CMPR. She indicated that the grammar checklist improved the quality of her feedback. However, she felt that grading peer's work using the writing rubric was not useful and might hurt peer's feeling if she received low score.

The peer review sheet was very helpful. I wasn't be able to review content of the peer's work without it. The peer review sheet also guided me what were needed in each paragraph and helped me provide better feedback. The use of the grammar checklist also helped me provide better feedback. But, I thought the writing rubric wasn't useful when grading my peer's work as receiving low score might hurt her feeling (Nancy, S4).

During the peer feedback discussion, Nancy asked if she could take turns screensharing the scores via Zoom. I told her it depended on Tara if she was comfortable as this was optional, and she did not mind exchanging the scores. However, considering her facial expression via Zoom, Tara felt comfortable at first and felt a little upset after she received the lower score. Before Nancy showed the score, she apologized Tara for giving her the low score and explained how come her score was low based on the rubric. The purpose of using the writing rubric in this study was to allow the participants to practice grading each other's work, so they had the grading experience using the rubric and was able to

apply this experience to their future classroom. Therefore, Nancy did a good job and had a good sense of being a good writing teacher as she followed the rubric when grading the peer's work. However, she was wrong reporting that the writing was not useful because Tara could learn to improve her writing abilities from the gained score.

Nancy had a positive feeling towards providing and receiving the peer feedback. She reported that the peer feedback was necessary to improve the quality of her work. When receiving the peer feedback, Nancy paid attention to all peer feedback and comments and replied to almost all of them. She used most of the peer feedback and comments to revise my first draft and added or combined her self-revisions where the peer overlooked with her revisions. Reviewing Tara's work allowed Nancy to learn to use new, unfamiliar academic/advanced words to improve her work.

I read all feedback received from Tara, compared them with her original work, and consider each peer feedback before deciding to accept or reject it. The peer feedback discussion via Zoom helped to clarify all peer feedback and comments and made me understand them. I used most of the peer feedback to revise work and ignoring/rejecting some of them. I added my self-revisions or combined them with Tara's revisions where she overlooked. I learned advanced vocabulary from Tara's work and used it to improve my work too (Nancy, S4).

When providing peer feedback, Nancy stated she used the sandwich feedback method, that I taught during the CMPR preparation, to avoid hurting the peer's feelings. Nancy was the only participant who reported the use of sandwich feedback method during the interview. In addition, she reported that providing and receiving peer feedback online via CMPR was fun. She strongly believed that teachers need to provide feedback to students' writing, so they know and learn from their mistakes to improve their writing ability.

"I used the sandwich feedback method when giving peer feedback on Tara's first draft. It helped me avoid hurting Tara's feeling, and it worked" (Nancy, S4).

Regarding the use of resources to support during CMPR, Nancy reported that she used both online resources (i.e., Cambridge dictionary and Google Translate) and a physical resource (i.e., *Microsoft Word's* Grammar and Spelling Check and grammar sheets from a previous course) when reviewing Tara's first draft.

I used Cambridge dictionary App to help search for word choices to replace inappropriate or repetitive words used by the peer and check parts of speech of words. I also used Google Translate and the dictionary to look up and check meaning of words in English and Thai. When I used Google Translate, I considered the use of tense not just copy and paste a sentence. Also, I used grammar sheets from a previous course to guide grammar structures such as If-Clause. I didn't use Grammarly to help when reviewing Tara's work (Nancy, S4).

Nancy had a positive feeling towards the CMC tools as implemented in this study. She reported that *Microsoft Word's* Track Changes and Comments was super helpful to make revisions and track them on peer's draft, so there was no need to look back and forth to see which revision made by peer. The use of the features was much more convenient than using the traditional paper-pencil method. Also, it was less-time consuming than using *Microsoft Word Document* alone.

Word's Track Changes and Comments was super helpful and convenient to use. I was able to make and delete comments via *Word's* Comments, and I didn't need to retype or redelete changes made by peer after I accepted them via *Word's* Track Changes. Clicking "accept" makes those changes automatically include in the draft (Nancy, S4).

Nancy indicated that she found the use of Zoom to discuss peer feedback while screensharing the paper with feedback convenient and less-time consuming. Zoom allowed Nancy and her peer to see each other's faces and had real-time discussions. Also, Zoom's features (e.g., chat and annotate) were easy to use, and she enjoyed using them during the peer feedback discussion.

I liked using the chat and annotate features of Zoom. I was able to send my *Word* file to my peer via the chat feature instead of via Facebook Messenger or Gmail

as I usually did before. I also liked to use highlighter in the annotate feature to circle words being discussed with peer during the peer feedback discussion (Nancy, S4).

Nancy felt that *Microsoft Word's* Track Changes and Comments were more important than peer feedback discussion via Zoom.

I thought *Word's* Track Changes and Comments were more important than Zoom peer feedback discussion. It helped record and track changes that I made, so I didn't need to self-memorize them. But, Zoom might be important in the sense that it allowed me to screenshare my changes made on peer's work to clarify misunderstandings (Nancy, S4).

Nancy reported she liked both traditional FFPR and CMPR and thought they might sometimes be done in a parallel fashion, but CMPR was easier and less-time consuming. She also pointed out the fact that online instruction has become more popular since COVID-19 and people opening their mind for online learning more. When asked to choose what method of instruction she preferred her future writing courses, she stated that she liked both online and traditional combined in her writing courses if provided.

In the end of the interview, Nancy reported technological issues regarding unstable internet connection at the beginning of CMPR (i.e., Day 1), and she was able to fix it herself.

I had a bad internet connection during the first meeting because of the slow hotspot speeds. I tried to compare the stability of internet connection between my phone's hotspot and my house's WiFi internet. Then I switched to use WiFi internet at home and no issues were found (Nancy, S4).

Another issue she reported during CMPR was promptness and availability of the participants. She pointed that there was a delay during the first Zoom meeting caused by a peer (i.e., Tara) not knowing how to log in Zoom. She thought time mattered for working in pairs or groups, and that everyone should be on time. She also found it hard to

schedule the Zoom (or even face-to-face) meetings for all due to having different availability/schedules and unexpected business. No problem with her peer was reported.

Overall, Nancy felt that she more fluent and familiar with *Microsoft Word's* Track Changes and Comments and Zoom and might use them to review peer's and students' work in future classrooms. She likes to use technology to facilitate her instruction as a future teacher, but it depends on her future school and availability of technology tools.

Chai. Chai was the participants' writing course instructor and the last person that I interviewed. The interview lasted 25 minutes. My dissertation committee suggested that I also interview this instructor because the participants might talk to him about CMPR. I agreed with my committee, so I included him in this study. Also, I wanted to ask his opinion about the students' writing ability, the writing course description, what type of instruction and feedback he provided, and his teaching experience in this writing course. This was to help me understand the participants better.

During the interview, Chai reported that no participants had a conversation with him regarding CMPR, so my interview questions were focused on his views stated above. I asked Chai to give me the name of the writing course and describe the focus of this course. It took him a while to search from his computer the course name and its focus. He then stated that this course was the university's new elective course called Writing Techniques (EFT 1202) from the new/recent curriculum. This course focused on grammar structures and aimed to enable students to write with correct use of basic grammar from sentence to paragraph levels, but the product of this course was not an essay. His instruction was focused on basic grammar such as parts of speech, words, phrases, and types of sentences for writing. When asked what year the participants would

learn to actually write an essay, Chai indicated that according to the new four-year curriculum, students would learn to write an essay in their 4th year, which would be their last year in the teacher preparation program. I found this to be too late and insufficient to improve students' English writing abilities and increase their writing self-efficacy as pre-service EFL teachers. Taking into account the writing goal, the curriculum should be redesigned.

When asked about the students' writing abilities in this course, Chai reported that there were a lot of students in this class, and less than one fourth of them were good at basic writing while the rest needed a lot of improvements. Chai indicated that most of his assignments were about writing exercises through worksheets where students were asked to make sentences using provided structures with examples of sentence to guide while writing. Chai sometimes assigned students to handwrite their ideas towards a given topic to examine their use of grammar, but not in the form of essay writing. When asked how often students received his feedback, Chai stated he rarely gave feedback to the class due to the large number of students.

I gave feedback to all assignments but couldn't give detailed feedback because there were too many students. I just checked if their use of grammar was correct and located where errors were found but didn't identify all of them. But, I told students to come to ask me if they had questions about my feedback on their work (Chai, T1).

When asked how often he used peer review during this course, he stated he rarely used it because most students were not qualified to review each other's work. He thought they might not gain anything from peer feedback.

The quality of their work might be worse if I had them review one another's work. There were only few students who had good basic grammar and might be able to review peers' work, but this wouldn't work (Chai, T1)

Chai also reported that he used to teach students about common errors through their peers' work that he had already checked to guide them when writing.

When asked what types of technology or software he used to facilitate during this writing course instruction, he stated he used only his computer to present the PowerPoint slides. He did not have any issues with his computer but sometimes found technical problem with the projector in the classroom, but he could fix it. When asked if he used Zoom before, he indicated he used it recently for the program and staff meetings, but not for instructions.

“I didn't use Zoom as it was hard for me to meet all students within just 40 mins as I was using a free account, so I didn't consider using it” (Chai, T1).

When asked if he used *Microsoft Word's* Track Changes and Comments before, Chai stated he used it once or twice a long time ago to review and grade his previous students' work and thought it did not work. He found it hard because there were too many students, and each of them made too many errors. Therefore, he gave up as this created a lot of work for him.

Chai reported the use of technology for classroom writing instruction was extremely important, and there was software to help students write better. However, available software was not specific and supportive enough to fix students' writing issues and reduce teacher's workload at the same time. Chai viewed the use of technology to facilitate classroom writing instruction in term of specific software development. Additionally, he suggested that before asking for/talking about the use of a software program to improve students' writing abilities, all students needed to have their own computers with access to the internet. Without these basic requirements for technology

used in classroom, Chai stated it was hard and seemed impossible to integrate technology in classroom instruction.

“I could find a software program to support my writing instruction, but it was useless if students did not have their own computers and internet” (Chai, T1).

When the writing course began, it was the time when the COVID-19 pandemic hit Thailand. Chai reported that the university postponed the start of the academic semester (delayed for about a month), and he was not required to teach this course, as well as the other courses, online. After that, he was able to teach all courses traditionally while wearing a required face mask.

Cross-Case Analysis

After thematic analysis, three prominent themes emerged: (a) CMPR Skills, (b) CMPR tools/resources, and (c) writing self-efficacy. Sub-themes included: (a) need of CMPR training, (b) writing experience of CMPR activity, (c) peer feedback, (d) convenience of use and appearance, (e) saving resources, (f) and seeking support and issues with technology. In this cross-case analysis, I compared and contrasted the themes that emerged during my analysis, which were the sub-themes emerged during thematic analysis.

All participants shared similar beliefs about need of CMPR training, writing experience of CMPR activity, peer feedback, convenience of use and appearance, saving resources, and seeking support and issues with technology. There were also differences between these six themes, stemming from their differences in previous experience with Zoom, types of resources used to support during the peer review process, and preference of future use of CMPR.

CMPR Skills: Need of CMPR training. All participants reported they needed CMPR training/preparation to be successful in CMPR. All of them indicated the CMPR preparation allowed them to learn how to use CMC tools, Zoom and *Microsoft Word's* Track Changes and Comments, effectively. Additionally, they learned the five-paragraph essay structure, grammar, vocabulary, and how to provide feedback effectively. Prior to this study, all participants reported that they had zero knowledge or experience with *Microsoft Word's* Track Changes and Comments. Alice and Nancy reported that they used Zoom once or twice before but never used it for instructional purpose while Betty and Tara reported that they never used Zoom before. Also, all participants never gave or received peer feedback and rarely received teacher feedback in English essays. Without the CMPR preparation, they indicated that they were not able to complete the assignments during the CMPR activity.

CMPR Skills: Writing Experience of CMPR Activity. All participants stated they had a good writing experience using CMPR and felt confident to grade peers' or future students' work. Betty, Tara, and Alice plan to use CMPR or integrate the CMC tools in their future classrooms while Nancy would be flexible depending on the school. When asked to choose between CMPR and FFPR for their future writing classes, Betty, Alice, and Tara reported that they preferred to do CMPR over FFPR, while Nancy preferred a combination between CMPR and FFPR. Alice thought FFPR can be replaced by CMPR with the availability of all required equipment. Overall, all participants agreed that CMPR needs to be implemented in future classrooms.

CMPR Skills: Peer Feedback. All participants reported the peer feedback during CMPR was useful, and they used them to revise their first drafts. They also felt positive

with giving and receiving peer feedback as it allowed them to understand their errors through peer comments and peer feedback discussions.

CMPR Tools/Resources: Convenience of Use and Appearance. All participants had positive feelings with CMC features and found them convenient to use. They stated that *Microsoft Word's* Track Change and Comments and Zoom worked comparably well together and peer feedback in *Microsoft Word* looked organized and easy to read.

CMPR Tools/Resources: Saving Resources. All participants indicated using the tools like the computers, *Microsoft Word*, and Zoom helped save time from traveling to meet the peer(s) in person. They did not need to pay for gas, but only the internet, and they did not have to waste their money on paper, pens, and highlighters. All participants stated that meeting via Zoom was more convenient than face-to-face meetings as they could work on the paper collaboratively anywhere anytime via Zoom.

CMPR Tools/Resources: Seeking Support and Issues with Technology. Most participants experienced technological issues during CMPR due to the lack of technological knowledge and skills. Alice, Tara, and Nancy had slow internet connections sometimes. Alice was unable to send her paper via Zoom chat because of her use of old versions of Zoom and *Microsoft Office Word* while Tara had problems with her camera and sound due to Zoom and computer settings. Betty did not have issues with internet connection. She was nervous to join the first Zoom meeting because she never used Zoom before, so she sought support from her sister and friend to join her first Zoom.

In addition to the peer review documents, participants used different online and offline resources to help in the peer review writing process. Betty used Google Translate

and Grammarly. Alice used *Microsoft Word's* Spelling and Grammar Check, an online dictionary, and a book dictionary. Tara used Grammarly, Google Translate, an online dictionary, and *Microsoft Word's* Grammar and Spelling Check. Nancy used Cambridge dictionary, Google Translate, *Microsoft Word's* Grammar and Spelling Check, and grammar sheets from a previous course.

Writing Self-Efficacy. All participants reported CMPR improved the quality of their papers, and their abilities to write and revise their draft were increased during CMPR. Additionally, they felt more confident to write essays in English, provide feedback, and grade peers' or future students' work.

Summary

This chapter included the detailed methods of analysis used for the data collected in this study: the pre-and post-writing revisions, the peer comments, the pre-and post-questionnaires, and the interviews. In addition to thematic analysis, I provided a cross-case analysis of all four participant's interview responses. In the final chapter, Chapter V, I provided discussions of findings, conclusions, implications for practice, and recommendations for future research.

CHAPTER V

Discussion

In the previous chapters, the presentation of this qualitative case study and the analysis of the data collected were reported. In this chapter, a summary of the purpose and major findings of the study was presented to give further insight of pre-service EFL teachers' CMPR writing experiences. This chapter also contains implications for practice, recommendations for future research, and a conclusion.

Summary of the Study

The purpose of this study was to examine the effect of experiencing CMPR on four pre-service EFL teachers' writing performance, their peer comments, their revision quality, their perceptions of CMPR, CMC features, and their writing self-efficacy. This study provides insightful and useful information for EFL writing instructors in secondary schools, curriculum writers for school districts, EFL writing professors in post-secondary institutions (i.e., colleges and university), and teacher preparation programs in Thailand, where online or hybrid classes were not common, and other non-English speaking countries who learn English as a foreign or second language.

By using the information obtained from this study, secondary school instructors and curriculum writers for school districts will be able to co-design curriculum and develop lessons that integrate online technology (e.g., CMPR) with writing instruction to prepare students for current and future online or hybrid writing classes. The lessons should provide basic types of essay writing, such as the five-paragraph essay implemented in this study, so that students are prepared for more advanced writing lessons at tertiary level. Similarly, this study will allow EFL writing professors and

teacher preparation programs in post-secondary institutions (i.e., colleges and university) in Thailand to have a better understanding of how their writing instructions and curriculum can affect their students' (i.e., pre-service EFL teachers) English writing abilities, technological knowledge and skills, and writing self-efficacy as pre-service EFL teachers. As a result, they can improve their skills to develop pre-service EFL teachers who are able to integrate technology in their EFL writing instruction effectively.

The findings of this study are considered timely due to experiencing the COVID-19 pandemic. Education worldwide shifted to hybrid or online classes for educators and students. This study can prepare students and future teachers with technology to implement in classes.

Four pre-service EFL teachers (i.e., second-year English majors) from a writing class who met the inclusion criteria and their course writing instructor (i.e., for interview only) at a public university in Northeastern Thailand were chosen. Their collected and analyzed data included: pre-and post-questionnaires, pre-test and post-test writing revisions, peer comments, and interviews. Their findings were used to answer the following four research questions:

(1) What are the qualitative effects of CMPR on Thai pre-service EFL teachers' writing abilities?

(2) How does this preparation affect the way these pre-service EFL teachers revise their papers after the peer review process?

(3) What are Thai pre-service EFL teachers' stated perspectives about CMPR and CMC as implemented in this study?

(4) What are the effects of CMPR on Thai pre-service EFL teachers' writing self-efficacy?

Discussion of Findings

Research Question 1

What are the Qualitative effects of CMPR on Thai pre-service EFL teachers' writing abilities?

The results of the pre-test and post-test writing revision analysis, the peer comment analysis, and pre-and post-questionnaires were used to answer the first research question. In this study, the analysis and interpretation of data focused on the participants' use of peer feedback to revise their first draft to understand how CMPR affected their writing abilities. I did not use the writing rubric to grade and compare each participant's first and second drafts to examine whether their writing abilities increased, but instead focused on the participants' abilities to apply revisions.

The results of the pre-test and post-test writing revision analysis and the peer comment analysis indicated that CMPR improved the quality and resulted in a high adoption rate of peer feedback to revise their first drafts. The application of peer feedback allowed participants to learn and improve their writing abilities during CMPR. The findings indicated that Alice made 38 total revisions on her first draft and used 19 of 37 feedback and 13 peer comments to revise her first draft. Betty made 111 total revisions on her first draft and used 120 of 164 peer feedback and 25 peer comments to improve her work. Nancy made 159 total revisions on her first draft and used 79 of 102 peer feedback and 33 peer comments to revise her first draft. Tara made 123 total revisions on

her first draft and used 114 of 180 peer feedback and 20 peer comments to improve her first draft.

These findings were supported by the questionnaire results, which indicated that CMPR was effective in improving the pre-service teachers' writing of an essay in English. They believed peer feedback during CMPR was extremely helpful for improving their grammar and vocabulary, revising subsequent drafts, and writing to accomplish the purpose of the assignment. Most participants perceived peer feedback during CMPR was very helpful for organization of ideas and the support they gave for each main idea in their essay. Overall, the participants' writing abilities were improved through providing and receiving peer feedback during CMPR. This finding was supported by Zheng et al.'s (2018) study that found synchronous discussions between peer reviewers and peer reviewees in web-based peer review improved undergraduate students' writing performance, especially content writing skills.

According to the high adoption rate of their peer feedback and their positive attitudes towards the application of CMPR from the pre-test and post-test writing revision analysis, the peer comment analysis, and pre-and post-questionnaires, the pre-service teachers successfully used CMPR to provide constructive peer feedback for their essay revisions. During CMPR, the pre-service teachers learned collaboratively to describe the organization structure of their peers' work, paraphrased it, and commented both on what seemed well done and what their peers might do to improve their work, as supported by Bruffee's (1984) own collaborative learning concept. Through this collaborative learning activity (i.e, CMPR), the writing ability of the peer reviewer and the peer reviewee, as well as the quality of the peer's work, tended to improve when students obtained help

from peers and the peer review activity itself (Bruffee, 1984). This study successfully provided a meaningful online writing experience and peer review implementation (i.e., CMPR) to improve four pre-service teachers' writing abilities.

The root of the EFL writing problems in Thailand is the unchanged shortage of qualified English writing teachers in pre-university levels over the past decades. Educators and researchers should focus on developing English writing competency in pre-service teachers majoring in English by providing meaningful writing experiences (e.g., CMPR) from experienced writing teachers. This study proved CMPR was a practical instructional strategy that can be implemented in existing curriculum that teaches writing and giving constructive feedback to the pre-service teachers through the facilitation of 21st century technology. CMPR will help reduce instructors' workloads and improve their students' writings by allowing them to provide and receive peer feedback in the drafting process. Additionally, writing instructors can use the CMPR activity to assess their students' writing. CMPR will promote students' autonomous learning and self-regulation through viewing their own work from the perspectives of others (Lui & Chai, 2006; Min, 2006). It will also develop students' cognitive, metacognitive, social, linguistic (Lui & Chai, 2006; Min, 2006), and critical thinking skills (Yu & Wu, 2011), as well as self-efficacy (Hsia et al., 2016).

This CMPR study successfully filled the research gap suggested by Ho (2015)'s study that future research could explore various types of ICT programs/software (e.g., voice or video chat) during different drafting processes outside the classroom that can be implemented inside existing classroom curriculum.

Research Question 2

How does this preparation affect the way these pre-service EFL teachers revise their paper after the peer review process?

To answer this question, I used the results of the writing revision analysis, the peer comment analysis, and the interview analysis. The writing revision analysis results from *Microsoft Word's Compare and Merge Documents* tool suggested that after the CMPR preparation, the pre-service teachers used their peer feedback and comments to revise their first drafts. Alice used more than half (19 of 37) of the feedback received from Betty to revise her first draft, which contained 38 revisions: 32 self-revisions and six peer revisions. She also revised her draft based on 13 peer comments. Betty used about two-thirds (120 of 164) of the peer feedback to improve her work, which contained 111 revisions: 16 self-revisions and 95 peer-revisions. Also, she revised her paper according to 25 peer comments. Nancy used four-fifth (79 of 102) of the peer feedback to revise her first draft, which included 159 revisions: 113 self-revisions and 46 peer-revisions. She also revised her paper according to 33 peer comments. Tara used three-fifth (114 of 180) of the peer feedback to improve her first draft, which contained 123 revisions: 29 self-revisions and 94 peer-revisions. She also revised her paper using 20 peer comments.

After the CMPR preparation, the participants enhanced the quality of their peer comments, which increased the number of peer-oriented comment revisions. The findings of the peer comment analysis indicated that nearly all of the comments made by participants on their peers' first drafts, both global and local, were revision oriented. Of 30 peer comments that Alice made on Betty's first draft, 26 comments were revision-

oriented: 11 comments were in the global area and 15 comments were in the local area. Of 22 comments that Betty made on Alice's draft, all of them were revision-oriented: 15 comments in the global area and seven comments in the local area. Surprisingly, Betty did not make any non-revision-oriented comments. Of 38 comments that Nancy made on Tara's first draft, 31 comments were revision-oriented: seven comments in the global area and 24 comments in the local area. Of 46 comments that Tara made on Nancy's first draft, 40 comments were revision-oriented: one comment was in the global area and 39 comments were in the local area.

The results of the interview analysis suggested that all participants reported the CMPR preparation was extremely effective. They stated that it allowed them to familiarize themselves with the CMPR documents (i.e., the peer review sheet, the grammar checklist, and the writing rubric) and improve knowledge and skills of grammar, vocabulary, and the five-paragraph essay structure. The participants also reported that they learned how to provide useful feedback and how to use the CMC tools (i.e., Zoom and *Microsoft Word's* Track Changes and Comments) with practice through the CMPR preparation. Prior to this study, all participants reported that they had zero knowledge or experience with *Microsoft Word's* Track Changes and Comments. Alice and Nancy reported that they used Zoom once or twice before but never used it for instructional purpose while Betty and Tara reported that they never used Zoom before.

The CMPR writing activity was useful and fun. I felt more confident to write essays in English and give feedback to my peers' or my future students' work. I didn't know how to give feedback and wasn't able to give feedback without the prior training. I didn't know to use Zoom features, but I learned from [the researcher] (Alice, S1; Betty, S1).

I gained confidence in using the peer review documents without confusions after being trained. It helped a lot. I learned, understood, and familiarized the essay

structure through practices. I was able to identify its parts and what was missing without having to look back at the peer review sheet. The peer review sheet helped improve the quality of my work. The scoring rubric was easy to use, so I was able to rate my peer's work appropriately using it (Alice, S2).

Having my work reviewed by peer during CMPR was necessary for improving quality of my paper through the peer's perspectives. My peer helped identify errors I could not find on my own and suggested revisions...The grammar knowledge taught during the training was very useful and it improved the quality of my work (Alice, S2).

The findings from the pre-test and post-test writing revision analysis, the peer comment analysis, and the interview analysis indicated that the CMPR preparation is an effective approach to improve pre-service EFL teachers' writing ability, enhance the quality of their peer comments, and increase the number of peer-oriented comment revisions with the use of technology. Min (2006) noted that "with extensive training inside and outside of class, trained peer review feedback can positively impact EFL students' revision types and quality of texts directly" (p. 118). This current CMPR study filled the research gap suggested by Zheng et al. (2018) regarding the training effect of CMPR using a synchronous interaction mode (e.g., Zoom) outside of class on pre-service teachers' writing competence and studying perceptions toward their writing self-efficacy.

Regarding the training effects of CMPR, the above findings of this study were supported by Liou and Peng's (2009) case study that found learners' peer comments became more revision-oriented as the understanding of quality-enhanced revisions increased. However, while students' adoption rate of peer comments was low in Liou and Peng's (2009) case study, my own study reflected a high adoption rate. The findings of this study also supported a belief that researchers of all the peer review modes found: students need to be given sufficient training in order to provide quality feedback (Guardado & Shi, 2007; Ho, 2015; Liu & Sadler, 2003).

Furthermore, all pre-service EFL teachers had positive attitudes towards the CMPR preparation and found it extremely effective. They stated that the preparation improved their knowledge and skills of writing (e.g., grammar, vocabulary, and the five-paragraph essay structure), familiarized themselves with the CMPR documents, enabled them to provide constructive feedback and use the CMC tools, and increased their confidence in writing. This finding(s) was supported by Liu & Sadler's (2003) study that having adequate training "result in more positive affect such as high motivation [which leads to high self-efficacy] and a better effect (i.e., more comments, more revision-oriented comments, and more revisions)" (p. 222).

In summary, the CMPR preparation (i.e., a nine-hour training session; three hours per day) successfully prepared the pre-service teachers with necessary knowledge and skills for the CMPR activity (i.e., reviewing peer's work using *Microsoft Word's* Track Changes and Comments and discussing peer feedback via Zoom conferencing). However, there were gaps regarding the peer review documents and the use of additional resources by pre-service teachers for future research to bear in mind when conducting a CMPR preparation. Although I instructed the pre-service teachers to avoid plagiarism or copy other people's work during the preparation, I failed to instruct them the copy-paste of recommendations from online resources were not allowed. One pre-service teacher (i.e., Tara) copied most of the recommended revisions exactly from an online resource (i.e., Grammarly) and pasted them on her peer's draft without additions. They were too long and too detailed. Another gap was that two pre-service teachers (i.e., Alice and Tara) reported, during the interview, that they were sometimes confused with the English terms named the peer documents (e.g., first draft and second draft).

Therefore, it is recommended future research clearly inform pre-service teachers that they may use additional online and offline resources to help guide them when giving peer feedback and comments. However, they are not allowed to copy and paste original recommendations from any resources as their own comments if they want to improve their abilities to provide feedback as future teachers. Additionally, future research should extend the length of the period of the preparation to familiarize pre-service teachers with the peer documents (e.g., the peer review sheet or first draft). They might also label them with numbers for an ease of understanding. Future research should also examine the effects of the extended length of the period of the preparation on pre-service EFL teachers' English writing abilities, peer review skills, quality of peer comments, and writing self-efficacy. Liou and Peng (2009) suggested that "if students continue to receive training on both English writing and peer review skills, the peer comments may be valued more by the receivers to adopt and know better how to improve their writing" (p. 522).

This CMPR study used a combined asynchronous tool (i.e., *Microsoft Word's* Track Changes and Comments) and synchronous tool (i.e., *Zoom* interaction) to improve pre-service EFL teachers' writing performance and writing self-efficacy outside of classroom. However, little research has examined the training effect of a combined CMPR trainings using voice and video chat (e.g., *Zoom*). Therefore, future research should explore various types of ICT software/programs (e.g., voice or video chat) during drafting processes inside or outside the classroom. More investigation is needed to be conducted in this area to shed more light on how technology shapes pre-service EFL teachers' commenting and revisions behaviors as well as their affective domains (e.g.,

self-efficacy). Due to the nature of this case study, only four pre-service teachers were explored. Future research should increase the number of pre-service teachers and examine training effects of CMPR from the larger sample size on their writing performance and writing self-efficacy.

Research Question 3

What are Thai pre-service EFL teachers' stated perspectives about CMPR and CMC as implemented in this study?

I used the results of pre-and post-questionnaires and the interview analysis to answer this question. The questionnaire results indicated that all participants had positive attitudes towards the use of CMPR and providing and/or receiving peer feedback. Most of them reported they strongly liked CMPR and found it extremely effective in improving their writing of essays in English. They stated that the peer feedback they received during CMPR was just right and understandable. Two participants indicated they used most of the peer feedback to revise their subsequent drafts.

Most participants believed peer feedback during CMPR was extremely helpful for improving their grammar and vocabulary. They found them extremely helpful for revising subsequent drafts and writing to accomplish the purpose of the assignment. Most participants reported peer feedback during CMPR was very helpful for organization of ideas in their essays and the support they gave for each main idea in their essays. Most participants reported that they were able to access a computer easily when wanting to do CMPR. However, one participant reported that reading her peer's draft on a computer was very difficult. Most participants reported that they wanted to continue doing CMPR in writing classes.

The questionnaire results indicated that all participants had positive attitudes towards the CMC features (*Microsoft Word*, Zoom, and email). All participants reported they preferred to give feedback on *Microsoft Word* instead of on paper after their first use. Liu and Sadler (2003) found most students disliked *Microsoft Word's* features at the beginning of the study, but later found them to be quite useful. However, the finding was supported by Ho's (2015) study that found the participants reported that they liked comments through *Microsoft Word's* annotation features over handwritten comments.

The four participants stated that they strongly liked to use Track Changes and Comments when providing feedback in *Microsoft Word* because they found them very helpful. Most participants found it easy to provide feedback and read comments right next to the problematic sentences and paragraphs in *Microsoft Word*. They indicated that giving comments right next to the problematic sentences and paragraphs was extremely helpful.

Most participants reported that Track Changes and Comments in *Microsoft Word* were very efficient and convenient to use for giving and receiving feedback. They indicated that the spelling and grammar checking feature in *Microsoft Word* was extremely helpful. Two participants stated giving feedback on *Microsoft Word* was extremely easy. Most participants found it extremely easy when giving feedback on *Microsoft Word* and found it very understandable.

The participants' experiences with online communication changed throughout the study and was reflected in the responses. Two participants indicated that sending drafts to peers via email was extremely efficient. Most participants strongly liked discussing feedback via Zoom video conferencing, found it extremely helpful for discussing peer

feedback, and found it extremely helpful for clarifying misunderstandings regarding peer feedback. Most participants indicated that the sharing screen in Zoom was extremely helpful for discussing feedback. Most participants somewhat liked working in pairs or groups in Zoom (breakout rooms) while one participant strongly liked it. Most participants found using features (e.g., annotate and chat) in Zoom was extremely helpful while sharing a screen and discussing feedback. Most participants indicated that discussing feedback via Zoom was easy and extremely helpful for revising subsequent drafts. Most participants reported Zoom was extremely efficient as a tool for discussing feedback.

To support the findings of the questionnaire above, the interview results were used. Betty, Alice, Tara, and Nancy reported during the interview that CMPR was useful for identifying errors they could not find in their own draft and provided skills necessary for future teachers. All participants stated that they liked CMPR and found it useful for their papers as it provided them the opportunity to learn to improve their ICT and English writing skills. They also felt positive with giving and receiving peer feedback as it allowed them to understand their errors through peer comments and peer feedback discussions. All participants had positive feelings with the CMC features and found them convenient to use during CMPR. They indicated that the CMC tools were more convenient, saved travelling time and costs, and was less-time consuming than via face-to-face. The CMC tools allowed them to work together anytime and anywhere they wanted online. This finding was supported by Guardado and Shi's (2007) and Tsai and Liang's (2009) studies that found CMPR could be more beneficial than traditional FFPR because it was more accessible and could be used anywhere and anytime with networked

computers or tablets. All participants stated that indicated that *Microsoft Word's* Track Change and Comments and Zoom worked comparably well together.

Most participants experienced technological issues during CMPR due to the lack of technological knowledge and skills. Alice, Tara, Nancy had slow internet connections sometimes. Alice was unable to send her paper via Zoom chat because of her use of old versions of Zoom and *Microsoft Office Word* while Tara had problems with her camera and sound due to Zoom and computer settings. Other issues the participants found were promptness and availability. Tara's tardiness during the first session delayed the group meeting and she had technological issues. Most participants stated that it was hard to finalize the schedule for group meetings to meet everyone's schedule.

Betty, Alice, and Tara reported that they preferred to do the peer review online (i.e., CMPR) over FFPR, while Nancy preferred a combination of CMPR and FFPR. Alice thought FFPR could be replaced by CMPR with the availability of all required equipment. Liu and Sadler (2003) and Ho (2015) recommended writing researchers combine *Microsoft Word* commenting with face-to-face discussion or draw on the strengths of the traditional mode. Furthermore, the researchers suggested that the balanced use of FFPR and CMPR could increase the effectiveness and efficiency of peer review in EFL/ESL writing classes because each mode had its advantages that cannot be replaced by the other mode. However, the findings of this study proved that, with the availability of all required equipment, FFPR can be replaced by CMPR with the use of Zoom video conferencing and *Microsoft Word's* Track Changes and Comments. Overall, all participants agreed that CMPR needed to be implemented in future classrooms. It is recommended that future research explore various types of ICT software/programs (e.g.,

voice or video chat) during drafting processes inside or outside the classroom to shed more light on how technology shapes pre-service EFL teachers' commenting and revisions behaviors as well as their affective domains such as self-efficacy.

Research Question 4

What are the effects of CMPR on Thai pre-service EFL teachers' writing self-efficacy?

I employed the results of the questionnaires and the interview analysis to answer the final research question. Before and after CMPR, the participants were asked nine questions regarding writing self-efficacy to compare the effects of CMPR. Their responses indicated that after participating in CMPR, all participants' sense of English writing self-efficacy as pre-service EFL teachers were increased overall.

Before CMPR, all participants reported that they believed they were slightly good at writing essay in English overall. Three participants felt their ability to write essays increased while one stayed the same. All participants also believed their writing accomplished the purpose of the assignment. However, all of them perceived they increased their abilities to accomplish the purpose of the assignment. Three participants felt they were skillful at organizing ideas and supporting each main idea. However, all participants believed their skills increased in organizing ideas and supporting each main idea after CMPR. While one participant believed they were not good at grammar, three participants felt their use of appropriate grammar was good. Nevertheless, all participants' grammar application increased after CMPR. Although three participants reported they believed their use of vocabulary was good, and one participant felt her

application of vocabulary was not good, all of them believed their abilities to use vocabulary increased after CMPR.

All participants had strong opinions towards their ICT skills used during this CMPR study. Before CMPR, one participant stated her ICT skills were moderate, two participants stated they were slightly good, and one participant indicated she was not good. However, all participants' opinions and ICT skills extremely increased after CMPR. All participants also had strong opinions towards the use of ICT to facilitate English writing instruction as a pre-service EFL teacher. One participant acknowledged it was extremely important, whereas three participants stated it was very important; however, all participants acknowledged that they had stronger opinions after CMPR. With providing feedback to peers' or future students' work, all participants concurred they were good. However, they believed their abilities to provide feedback to peer's or future students' work extremely increased after CMPR.

The results of the interviews supported the findings of the questionnaires. After participating in the CMPR preparation and activity (i.e., CMPR), all participants' sense of English writing self-efficacy as pre-service EFL teachers were increased. Betty stated the lack of CMPR skills and the need of preparation to be successful in CMPR and in the use of Zoom and *Microsoft Word's* Track Changes and Comments, which were the CMC tools implemented in this study.

I don't know how to give feedback without the prior training. I don't know how to use Zoom features, but I learned them from [the researcher] and and I asked my sister and a friend from another college to teach me how to join Zoom my first Zoom meeting. Now I am able to use *Word* Track Changes and Comments tools after being taught. I have learned the writing and feedback skills I need to improve my essay ideas. I completely understand *Word's* Track Changes and Comments after training. I wish I could have learned this writing activity earlier.

I'm like I'm surprised by lots of errors I made and peer feedback received from the peer on my 1st draft and I know the peer makes errors too (Betty, S1).

Alice reported she enjoyed reviewing Betty's work and providing feedback. CMPR allowed her to familiarize herself with the CMPR documents and process, and that increased her confidence to use them in the future.

I gained confidence in using the peer review documents without confusions after being trained. It helped a lot. I learned, understood, and familiarized the essay structure through practices. I was able to identify its parts and what was missing without having to look back at the peer review sheet. The peer review sheet helped improve the quality of my work. The scoring rubric was easy to use, so I was able to rate my peer's work appropriately using it (Alice, S2).

The findings of the questionnaires and the interviews suggested that after participating in CMPR, all participants' beliefs in their writing abilities and sense of English writing self-efficacy as pre-service EFL teachers were increased. These findings were supported by Zheng et al.'s (2018) study that found synchronous discussions between peer reviewers and peer reviewees in web-based peer review improved undergraduate students' writing performance, especially content writing skills and their writing self-efficacy. It is recommended that future research extend the length of the study and integrate CMPR into existing classroom curriculum to examine the effects of pre-service EFL teachers on their writing self-efficacy.

Findings related to Theoretical Frameworks

In summary, this current study relied on the four lenses: Vygotsky's (1978) social constructivism theory, Bruffee's (1984) collaborative learning, Cope and Kalantzis (2000) and New London Group's (1996) multiliteracies lens, and Bandura's (1986) self-efficacy theory. CMPR related to these lenses in that it provided the participants a new learning and writing experience with appropriate support from their peers through online

social interactions. The CMC tools (i.e., *Microsoft Word's* Track Changes and Comments and Zoom) allowed participants to gain multiliteracy skills from using technology to facilitate their writing during CMPR (Cope & Kalantzis, 2000; New London Group, 1996). The peer review process used Bandura's (1994) social models and social persuasion to allow participants to read and compare their writing to the work of peers with the same/similar age who displayed good writing skills. This activity can promote positive thoughts about ones' writing self-efficacy. Additionally, social interaction during CMPR relates to Vygotsky's (1978) social constructivism theory because it allows participants to learn and improve their writing with appropriate support from their peers. As a result, the quality of the writing abilities of the peer reviewer and reviewee improved from the collaboration within the CMPR activity (Bruffee, 1984). This study proved that CMPR improved participants' self-efficacy and English writing skills through social models and social persuasion.

Implications for Educators

The findings of this study have contributed to the understanding that with preparation, feedback from peers during CMPR could improve pre-service EFL teachers' writing performance and increase their writing self-efficacy, an important factor in helping students succeed in academic learning. The findings provide practical implications for all who are in the field of EFL writing instruction, university programs, and teacher preparation programs, especially English education major students in Thailand (i.e., pre-service EFL teachers) who aspire to be teachers after their graduation. The implications are as follows:

(1) For higher learning institutions in Thailand, institutions should be more prepared to use online or hybrid approach and provide sufficient training to their lecturers on how to use technological tools and features (i.e., both synchronous and asynchronous) to manage their classroom. Although online or hybrid instruction is not common in universities in Thailand, universities and lecturers need to familiarize themselves with advantages of technology in the classroom to be better equipped for unexpected situations such as the COVID-19 pandemic. Instead of closing down the universities, lecturers are able to smoothly transition from face-to-face to online instruction. Therefore, it is recommended that Thailand university teacher preparation programs provide technology to writing instructors through professional development focusing on the use of CMPR.

(2) For Thailand university teacher preparation programs' curriculum design, the university's four-year curriculum commonly requires English education major students to register for two writing courses in the program. For the university in this study, pre-service teachers received the actual essay writing instruction during their final year. This design of curriculum provided insufficient opportunities to support students' competence and confidence in English writing. Taking into account the writing goal, the curriculum should be redesigned by including practical strategies such as CMPR and its preparation. This might help solve writing problems of pre-service teachers at universities in Thailand. Glass (2008) noted that the type of English writing students learn does not prepare them well enough because they begin to learn writing at a tertiary level. This results in English major graduates in education programs not being able to produce a quality piece of text with the help of 21st century technology. Like other skills in nature, writing and CMPR preparation requires time for a person to master.

(3) For writing instructors, they must be supportive enough to provide pre-service teachers a meaningful writing experience. In this study, the writing instructor (i.e., Chai) rarely used technology to facilitate writing instruction, underestimated the effectiveness of CMPR, and believed it would not work for his students due to low proficiency of English. Also, the instructor rarely gave feedback due to the use of traditional teaching method in the large class size, but can help expand their method by the application of CMPR. This provides an opportunity for pre-service teachers to identify good and bad feedback from peers and instructors, reducing his workload of inputting feedback for the whole class.

Recommendations for Further Research

With a narrow focus of this study, this study would yield some suggestions for further study as follow:

(1) The writing cycle used in this study (i.e., brainstorming/pre-writing tasks, writing the first draft, CMPR activity, writing second draft, researcher-writer conference, and writing the final draft) might not fit all participants' needs due to their different background knowledge and experience. At the end of the writing cycle in this study, only two participants completed their final drafts with minor errors, one participant completed her draft with errors regarding the thesis statement, and one participant rewrote their draft after received my feedback regarding idea organization and still needed peer feedback. It is recommended that future researchers add another writing draft and another CMPR activity to the writing cycle to allow all participants to complete the final drafts with minor errors.

(2) Future researchers should combine teacher feedback in the writing cycle to help participants who struggle with global areas (e.g., idea development and organization of writing) that require experienced writers or teachers to support. Otherwise, the peer review is “nothing more than the blind leading blind with unskilled editors guiding inexperienced writers in a process neither understand well” (Liu and Chai, 2006, p. 33).

(3) This study found that two participants’ second drafts were off topic. Future researchers should allow participants to choose an essay topic of interest, so they have motivation, sufficient knowledge, and information to write.

(4) Future researchers should extend the length of the period of the preparation, so that participants can improve their feedback and writing abilities. Liou and Peng (2009) suggested that “if students continue to receive training on both English writing and peer review skills, the peer comments may be valued more by the receivers to adopt and know better how to improve their writing” (p. 522).

(5) Future research should examine various types of video conferencing software (e.g., Zoom) during different drafting processes within classroom instruction to reveal how technology shapes students’ self-efficacy and peer review strategies and behaviors.

Conclusion

The purpose of this qualitative case study was to examine the effect of experiencing CMPR on four Thai pre-service EFL teachers’ writing performance, their peer comments, their revision quality, their perceptions of CMPR, CMC features implemented, and their writing self-efficacy after the preparation. With regards to triangulation, different types of data (i.e., pre-and post-questionnaires, pre-test and post-test writing revisions, peer feedback/comments, student interviews, and a teacher

interview) were collected to increase confidence and understanding of the findings. The different types of data analysis were used for the interview data (i.e., thematic analysis, case-by-case analysis, cross-case analysis, member checking, and peer debriefing) to increase trustworthiness and validity of the research findings.

The findings suggested that CMPR improved four Thai pre-service EFL teachers' writing performance and increased their writing self-efficacy after preparation. They provided insightful and useful information for EFL writing instructors in university teacher preparation programs in Thailand, where online or hybrid classes and peer review were not common. As a result, English education major students in Thailand (i.e., pre-service EFL teachers) who aspire to be teachers after their graduation should be taught CMPR.

Summary

In Chapter V, I provided a summary of the study and discussions of major findings of the study to give further insight of pre-service EFL teachers' CMPR writing experience. Research implications for educators, recommendations for further research, and conclusion in this final chapter are also addressed.

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APPENDIX A

The Granted Permission Letter



Sam Houston State University
MEMBER THE TEXAS STATE UNIVERSITY SYSTEM
SCHOOL OF TEACHING AND LEARNING

October 1, 2020

Dr. Somprasong Senarat
 Dean of Faculty of Education,
 Roi Et Rajabhat University
 113 Moo 12, Koh Kaew Sub-District,
 Selaphum District, Roi Et Province
 45120 Thailand

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH IN YOUR INSTITUTION

Dear Dr. Somprasong Senarat,

My name is Chotika Kaewkaemket, and I am a doctoral student of the School of Teaching and Learning at Sam Houston State University in Texas. I am currently on leave from Roi Et Rajabhat University. I am conducting a research project for my doctoral dissertation that involves the exploration and description of the effects of computer-mediated peer review (CMPR) on pre-service EFL teachers' writing ability and self-efficacy. This research project is implemented under the supervision of Dr. Debra Price of the School of Teaching and Learning at SHSU.

I am hereby seeking your consent to conduct this research project at your institution and collect data (online) from participants under your supervision. Participants include an EFL writing class of second-year English majors attending a four-year program at your university. In this class, four students, as well as their teacher, will be purposefully selected to voluntarily participate in this case study research.

I have provided you with the information sheet regarding this research project and a copy of my consent forms to be used in the research process (not yet fully approved).

Your approval to implement this research project will be greatly appreciated. If you have any questions or concerns, please do not hesitate to contact me at +1 (936) 668-6319 or e-mail cxk016@shsu.edu.

Thank you for your time and consideration in this matter.

Yours Sincerely,
 Chotika Kaewkaemket
 School of Teaching and Learning, Sam Houston State University


 Dr. Somprasong Senarat
 Dean of Faculty of Education,
 Roi Et Rajabhat University

APPENDIX B

The IRB approval

Date: 6-10-2021

IRB #: IRB-2020-281

Title: The Effects of Computer-Mediated Peer Review on Pre-Service EFL Teachers' Writing Ability and Self-Efficacy: A Case Study

Creation Date: 9-21-2020

End Date:

Status: Approved

Principal Investigator: Chotika Kaewkaemket

Review Board: SHSU IRB

Sponsor:

Study History

Submission Type	Initial	Review Type	Limited	Decision	Exempt - Limited IRB
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Key Study Contacts

Member	Debra Price	Role	Co-Principal Investigator	Contact	edu_dpp@shsu.edu
Member	Chotika Kaewkaemket	Role	Principal Investigator	Contact	cxk016@shsu.edu
Member	Chotika Kaewkaemket	Role	Primary Contact	Contact	cxk016@shsu.edu

APPENDIX C

Pre-Questionnaire of Pre-Service Teachers' Attitudes Towards CMPR, CMC

Features, and Writing Self-Efficacy

Consent

Hello, my name is Chotika Kaewkaemket and I am a doctoral student of the School of Teaching and Learning at Sam Houston State University (SHSU). I am conducting a study under the direction of Dr. Debra Price to identify pre-service EFL teachers' attitudes towards computer-mediated peer review (CMPR), computer-mediated communication (CMC) features, and writing efficacy. I am asking you as a pre-service teacher to complete a survey. The results will be reported in a dissertation that I will complete as a requirement of my graduate program.

The following survey includes questions that ask you to describe your personal experience regarding your writing instruction and feedback; preferences relating to giving/receiving feedback; the use of *Microsoft Word*, *Microsoft Word's* Track Changes and Comments, and Zoom; as well as your writing self-efficacy as a pre-service teacher. It will take about 10 minutes of your time to complete the survey. To qualify for this study, you must (a) be over the age of 18, (b) be a Thai native speaker, (c) learn English as a foreign language (EFL), (d) be a second-year English major attending a four-year English program in a university in Northeastern Thailand, and (e) have enrolled in the university's elective course called Basic Writing for the first semester of academic year 2020-2021.

Your participation in this study is voluntary. If you decide to participate, your responses will be anonymous - that is, recorded without any identifying information that is linked to you. If you have any questions regarding this survey, please contact me at (936) 668-6319 or cxk016@shsu.edu. If you have any questions regarding your rights as a human subject and participant in this study, or to report research-related problems, you may call the Institutional Review Board at SHSU for information, at (936) 294-4875, or irb@shsu.edu. Please indicate below your willingness to complete the survey. Thank you for your time, and we appreciate your participation.

- ☐ I agree.
- ☐ I do not agree.

Instructions: This survey consists of four parts and a total of 24 items. Completion of this survey should take no more than 10 minutes. Your responses will be anonymous. Please answer the following questions based on your personal experience regarding your writing instruction and feedback; preferences relating to giving/receiving feedback; the use of *Microsoft Word*, *Microsoft Word's* Track Changes and Comments, and Zoom; as well as your writing self-efficacy as a pre-service teacher.

Part 1: Previous experience with writing instruction and feedback (6 items)

1. Did you ever learn to write essays in Thai?

A: Yes B: No (Go to question 4)

2. When you learned to write essays in Thai, how often did you receive teacher feedback?

A: Never B: Once or twice C: Often D: Every essay

3. When you learned to write essays in Thai, how often did you give and/or receive peer feedback?

A: Never B: Once or twice C: Often D: Every essay

4. Did you ever learn to write essays in English?

A: Yes B: No (Go to question 7)

5. When you learned to write essays in English, how often did you receive teacher feedback?

A: Never B: Once or twice C: Often D: Every essay

6. When you learned to write essays in English, how often did you give and/or receive peer feedback?

A: Never B: Once or twice C: Often D: Every essay

Part 2: preferences relating to giving/receiving feedback (2 items)

7. How often would you like to practice peer feedback during this Basic Writing Course?

A: Never B: Once or twice C: Often D: Every essay

8. How often would you like to receive teacher feedback during this Basic Writing Course?

- A: Never B: Once or twice C: Often D: Every essay

Part 3: Previous writing experiences regarding the use of *Microsoft Word*, *Microsoft Word's Track Changes and Comments*, and *Zoom* (7 items)

9. Did you ever use *Microsoft Word* to write essays in Thai?

- A: Yes B: No (Go to question 11)

10. When you wrote essays in Thai using *Microsoft Word*, how often did you use *Microsoft Word's Track Changes and Comments* to make and receive comments?

- A: Never B: Once or twice C: Often D: Every essay

11. Did you ever use *Microsoft Word* to write essays in English?

- A: Yes B: No (Go to question 13)

12. When you wrote essays in English using *Microsoft Word*, how often did you use *Microsoft Word's Track Changes and Comments* to make or receive comments?

- A: Never B: Once or twice C: Often D: Every essay

13. Did you ever use *Zoom*?

- A: Yes B: No (Go to question 16)

14. How often did you use *Zoom* to discuss your Thai essays?

- A: Never B: Once or twice C: Often D: Every essay

15. How often did you use *Zoom* to discuss your English essays?

- A: Never B: Once or twice C: Often D: Every essay

Part 4: Pre-service teachers' Writing Self-Efficacy (9 items)

16. In this study, information and communication technology (ICT) skills refer to the ability to use *Microsoft Word* features in computers (hardware), the internet (software), and Zoom as an online data sharing platform/video conference application. How well do you believe your ICT skills are?

- A. Extremely well
- B. Very well
- C. Moderately well
- D. Slightly well
- E. Not well at all

17. As a pre-service teacher, how important do you believe the use of ICT is to facilitate English writing instruction?

- A. Extremely important
- B. Very important
- C. Moderately important
- D. Slightly important
- E. Not important at all

18. How well do you believe you are at providing feedback to peers' work or future students' work?

- A. Extremely well
- B. Very well
- C. Moderately well
- D. Slightly well

E. Not well at all

19. Overall, how well do you believe you are at writing essays in English?

A. Extremely well

B. Very well

C. Moderately well

D. Slightly well

E. Not well at all

20. How well do you believe your writing accomplishes the purpose of the assignment when writing essays in English?

A. Extremely well

B. Very well

C. Moderately well

D. Slightly well

E. Not well at all

21. How well do you believe you are at organizing ideas when writing essays in English?

A. Extremely well

B. Very well

C. Moderately well

D. Slightly well

E. Not well at all

22. How well do you believe you are at supporting each main idea when writing essays in English?

A. Extremely well

- B. Very well
- C. Moderately well
- D. Slightly well
- E. Not well at all

23. How well do you believe you use appropriate grammar when writing essays in English?

- A. Extremely well
- B. Very well
- C. Moderately well
- D. Slightly well
- E. Not well at all

24. How well do you believe your vocabulary is used when writing essays in English?

- A. Extremely well
- B. Very well
- C. Moderately well
- D. Slightly well
- E. Not well at all

_____ Thank you for your time _____

APPENDIX D

Post-Questionnaire

Pre-service teachers' attitudes towards CMPR, CMC features, and writing self-efficacy

Consent

Hello, my name is Chotika Kaewkaemket and I am a doctoral student of the School of Teaching and Learning at Sam Houston State University (SHSU). I am conducting a study under the direction of Dr. Debra Price to identify pre-service EFL teachers' attitudes towards computer-mediated peer review (CMPR), computer-mediated communication (CMC) features, and writing efficacy. I am asking you as a pre-service teacher to complete a survey. The results will be reported in a dissertation that I will complete as a requirement of my graduate program.

The following survey includes questions that ask you to describe your personal experience and perceptions about CMPR and peer feedback, your reaction to CMC features (i.e., *Microsoft Word*, *Zoom*, and email), and your writing self-efficacy as a pre-service teacher. It will take about 15 minutes of your time to complete the survey. To qualify for this study, you must (a) be over the age of 18, (b) be a Thai native speaker, (c) learn English as a foreign language (EFL), (d) be a second-year English major attending a four-year English program in a university in Northeastern Thailand, and (e) have enrolled in the university's elective course called Basic Writing for the first semester of academic year 2020-2021.

Your participation in this study is voluntary. If you decide to participate, your responses will be anonymous - that is, recorded without any identifying information that is linked to you. If you have any questions regarding this survey, please contact me at (936) 668-6319 or cxk016@shsu.edu. If you have any questions regarding your rights as a human subject and participant in this study, or to report research-related problems, you may call the Institutional Review Board at SHSU for information, at (936) 294-4875, or irb@shsu.edu. Please indicate below your willingness to complete the survey. Thank you for your time, and we appreciate your participation.

- ☐ I agree.
- ☐ I do not agree.

Instructions: This survey consists of three parts and a total of 48 items. Completion of this survey should take no more than 15 minutes. Your responses will be anonymous. Please answer the following questions based on your personal experience and perceptions about CMPR and peer feedback, your reaction to CMC features (i.e., *Microsoft Word*, *Zoom*, and email), and your writing self-efficacy as a pre-service teacher.

Part 1: Pre-service teachers' Writing Self-Efficacy (9 items)

1. Overall, how well do you believe you are at writing essays in English now?

- A. Extremely well
- B. Very well
- C. Moderately well
- D. Slightly well
- E. Not well at all

2. Now, how well do you believe your writing accomplishes the purpose of the assignment when writing essays in English?

- A. Extremely well
- B. Very well
- C. Moderately well
- D. Slightly well
- E. Not well at all

3. Now, how well do you believe you are at organizing ideas when writing essays in English?

- A. Extremely well
- B. Very well
- C. Moderately well
- D. Slightly well

E. Not well at all

4. Now, how well do you believe you are at supporting each main idea when writing essays in English?

A. Extremely well

B. Very well

C. Moderately well

D. Slightly well

E. Not well at all

5. Now, how well do you believe you use appropriate grammar when writing essays in English?

A. Extremely well

B. Very well

C. Moderately well

D. Slightly well

E. Not well at all

6. Now, how well do you believe your vocabulary is used when writing essays in English?

A. Extremely well

B. Very well

C. Moderately well

D. Slightly well

E. Not well at all

7. In this study, information and communication technology (ICT) skills refer to the ability to use *Microsoft Word* features in computers (hardware), the internet (software), and Zoom as an online data sharing platform/video conference application. Now, how well do you believe your ICT skills are?

- A. Extremely well
- B. Very well
- C. Moderately well
- D. Slightly well
- E. Not well at all

8. As a pre-service teacher, how important do you believe the use of ICT is to facilitate English writing instruction now?

- A. Extremely important
- B. Very important
- C. Moderately important
- D. Slightly important
- E. Not important at all

9. Now, how well do you believe you are at providing feedback to peers' work or future students' work?

- A. Extremely well
- B. Very well
- C. Moderately well
- D. Slightly well
- E. Not well at all

Part 2: Pre-service teachers' perceptions of Computer-Mediated Peer Review
(CMPR) and peer feedback (17 items)

10. How much do you like CMPR?

- A. Strongly like
- B. Like somewhat
- C. Neither like or dislike
- D. Dislike somewhat
- E. Strongly Dislike

11. How effective do you think CMPR is improving your writing of essays in English?

- A. Extremely effective
- B. Very effective
- C. Moderately effective
- D. Slightly ineffective
- E. Extremely ineffective

12. How much peer feedback did you give during CMPR?

- A. Very insufficient
- B. A little insufficient
- C. Just right
- D. A little too much
- E. Far too much

13. How much peer feedback did you receive during CMPR?

- A. Very insufficient
- B. A little insufficient

C. Just right

D. A little too much

E. Far too much

14. How much of the peer feedback did you understand?

A. All

B. Most

C. Some

D. A little

E. None

15. How much of the peer feedback did you use to revise your subsequent drafts?

A. All

B. Most

C. Some

D. A little

E. None

16. How helpful was computer-mediated peer feedback for improving your English writing in accomplishing the purpose of the assignment?

A. Extremely helpful

B. Very helpful

C. Moderately helpful

D. Slightly helpful

E. Not helpful at all

17. How helpful was computer-mediated peer feedback for improving the organization of ideas in your essays?

A. Extremely helpful

B. Very helpful

C. Moderately helpful

D. Slightly helpful

E. Not helpful at all

18. How helpful was computer-mediated peer feedback for improving the support you gave for each main idea in your essays?

- A. Extremely helpful
- B. Very helpful
- C. Moderately helpful
- D. Slightly helpful
- E. Not helpful at all

19. How helpful was computer-mediated peer feedback for improving your grammar?

- A. Extremely helpful
- B. Very helpful
- C. Moderately helpful
- D. Slightly helpful
- E. Not helpful at all

20. How helpful was computer-mediated peer feedback for improving your vocabulary?

- A. Extremely helpful
- B. Very helpful
- C. Moderately helpful
- D. Slightly helpful
- E. Not helpful at all

21. Overall, how helpful was computer-mediated peer feedback?

- A. Extremely helpful
- B. Very helpful
- C. Moderately helpful
- D. Slightly helpful
- E. Not helpful at all

22. How helpful was CMPR for revising subsequent drafts?

- A. Extremely helpful
- B. Very helpful
- C. Moderately helpful
- D. Slightly helpful
- E. Not helpful at all

23. How difficult was giving/receiving feedback on the computer?

- A. Extremely difficult
- B. Very difficult
- C. Moderately difficult
- D. Slightly difficult
- E. Not difficult at all

24. How difficult was reading your peers' drafts on a computer?

- A. Extremely difficult
- B. Very difficult
- C. Moderately difficult
- D. Slightly difficult
- E. Not difficult at all

25. How easily were you able to access a computer when you wanted to do CMPR?

- A. Extremely easy
- B. Very easy
- C. Moderately easy
- D. Slightly easy

E. Not easy at all

26. How much do you want to continue doing CMPR in writing classes?

A. Very much

B. Much

C. Moderate

D. Very little

E. Not at all

Part 3: Students' Reaction to CMC Features (Word, Zoom, and email) (22 items)

27. How much do you prefer to give feedback on your peer's draft in *Microsoft Word* compared to on paper?

A. Very much

B. Much

C. Moderate

D. A little

E. Very little

28. How much do you like to use Track Changes and Comments when providing feedback in *Microsoft Word*?

A. Strongly like

B. Like somewhat

C. Neither like or dislike

D. Dislike somewhat

E. Strongly dislike

29. How helpful was Track Changes and Comments when providing feedback in
Microsoft Word?

- A. Extremely helpful
- B. Very helpful
- C. Moderately helpful
- D. Slightly helpful
- E. Not helpful at all

30. How was it to provide feedback right next to the problematic sentences/paragraphs in
Microsoft Word?

- A. Very easy
- B. Easy
- C. Moderate
- D. A little difficult
- E. Very difficult

31. How was it to read comments right next to the problematic sentences/paragraphs?

- A. Very easy
- B. Easy
- C. Moderate
- D. A little difficult
- E. Very difficult

32. How helpful was giving comments right next to the problematic
sentences/paragraphs?

- A. Extremely helpful

- B. Very helpful
- C. Moderately helpful
- D. Slightly helpful
- E. Not helpful at all

33. How convenient was Track Changes and Comments in *Microsoft Word* for giving feedback?

- A. Extremely convenient
- B. Very convenient
- C. Moderately convenient
- D. Slightly inconvenient
- E. Extremely inconvenient

34. How efficient was Track Changes and Comments in *Microsoft Word* as a tool for giving/receiving feedback?

- A. Extremely efficient
- B. Very efficient
- C. Moderately efficient
- D. Slightly inefficient
- E. Extremely inefficient

35. How helpful was the spelling and grammar checking feature in *Microsoft Word*?

- A. Extremely helpful
- B. Very helpful
- C. Moderately helpful
- D. Slightly helpful

E. Not helpful at all

36. How do you think about giving feedback on *Microsoft Word*?

A. Extremely easy

B. Somewhat easy

C. Neither easy nor difficult

D. Somewhat difficult

E. Extremely difficult

37. How was it when giving feedback on *Microsoft Word*?

A. Extremely easy

B. Somewhat easy

C. Neither easy nor difficult

D. Somewhat difficult

E. Extremely difficult

38. How understandable was the feedback received on *Microsoft Word*?

A. Extremely understandable

B. Very understandable

C. Moderately understandable

D. Slightly understandable

E. Not understandable at all

39. How efficient was sending drafts to peers via email?

A. Extremely efficient

B. Very efficient

C. Moderately efficient

D. Slightly efficient

E. Not efficient at all

40. How much did you like to discuss feedback via Zoom video conferencing?

A. Strongly like

B. Like somewhat

C. Neither like or dislike

D. Dislike somewhat

E. Strongly dislike

41. How helpful was Zoom video conferencing for discussing peer feedback?

A. Extremely helpful

B. Very helpful

C. Moderately helpful

D. Slightly helpful

E. Not helpful at all

42. How helpful was Zoom video conferencing for clarifying misunderstandings regarding peer feedback?

A. Extremely helpful

B. Very helpful

C. Moderately helpful

D. Slightly helpful

E. Not helpful at all

43. How helpful was the sharing screen in Zoom for discussion feedback?

A. Extremely helpful

- B. Very helpful
- C. Moderately helpful
- D. Slightly helpful
- E. Not helpful at all

44. How much do you like working in pairs/groups in Zoom (breakout rooms)?

- A. Strongly like
- B. Like somewhat
- C. Neither like or dislike
- D. Dislike somewhat
- E. Strongly dislike

45. How helpful was using features (e.g., annotate and chat) in Zoom while sharing a screen and discussing feedback?

- A. Extremely helpful
- B. Very helpful
- C. Moderately helpful
- D. Slightly helpful
- E. Not helpful at all

46. How was it to discuss feedback via Zoom?

- A. Very easy
- B. Easy
- C. Moderate
- D. A little difficult
- E. Very difficult

47. How helpful was discussing feedback via Zoom for revising subsequent drafts?

- A. Extremely helpful
- B. Very helpful
- C. Moderately helpful
- D. Slightly helpful
- E. Not helpful at all

48. How efficient is Zoom as a tool for discussing feedback?

- A. Extremely efficient
- B. Very efficient
- C. Moderately efficient
- D. Slightly inefficient
- E. Extremely inefficient

_____ Thank you for your time _____

APPENDIX E

The Granted Permission Email

Hello Mr. Farr,

Thank you so much!

Sincerely,
Chotika

From: Tom Farr <tjfarr@huntsville-isd.org>

Sent: Friday, May 28, 2021 11:36 PM

To: Kaewkaemket, Chotika <cxk016@SHSU.EDU>

Subject: Re: Request for permission to use your grammar checklist

Good evening, Ms. Kaewkaemket,

I apologize for the late response. Yes, you have my permission to use it. Thank you for asking. I hope it does what you need it to do.

Thanks.

On Wed, May 26, 2021 at 4:00 PM Kaewkaemket, Chotika <cxk016@shsu.edu> wrote:

RE: REQUEST FOR PERMISSION TO USE YOUR GRAMMAR CHECKLIST

Dear Mr. Farr,

My name is Chotika Kaewkaemket. I am a doctoral student of the School of Teaching and Learning at Sam Houston State University and parent of your ninth-grade student.

I am conducting a research project for my doctoral dissertation that involves the exploration and description of the effects of computer-mediated peer review (CMPR) on pre-service EFL teachers' writing ability and self-efficacy. This research project is implemented under the supervision of Dr. Debra Price of the School of Teaching and Learning at SHSU. I find your grammar checklist (attached) very useful when I helped my son with his homework. Therefore, I would like to ask your permission to use it with my research participants who are English language learners. I would make some changes to make sure it fits my participants.

APPENDIX F**Peer Review Sheet**

(Adapted from Min's (2006) Guidance sheet for reviewing Multiple-paragraph essays)

Paragraph#1

1. Read the introduction paragraph.

- ☐ Was there a thesis statement toward the end of the introduction?
- ☐ Did the thesis statement contain main ideas?
- ☐ How many main ideas were there?

2. Please underline the thesis statement and mark 1, 2, or 3 on each main idea.

- ☐ Did these main ideas correlate?
- ☐ Were these main ideas sequenced in accordance with importance?
- ☐ Drawing on what you have read so far, if you cannot find a thesis statement, what do you expect to read in the following paragraphs?

3. Summarize it in one sentence and show it to your partner.

Paragraph#2

1. Now, read the second paragraph.

- ☐ Did the writer write according to your expectation(s)? If not, what did the writer write instead?
- ☐ Did you think the writer was off topic?

2. Go back to the thesis statement to make sure that you understand the main ideas.

- ☐ Did the author talk about the first main idea from the thesis statement? If not, remind him/her that he/she should.

- Were there any concrete examples or explanations in this paragraph to support the main idea?
 - Were the examples or explanations well balanced (in terms of sentence length and depth of discussion)?
 - Were the examples or explanations relevant and sequenced properly?
3. If your partner wrote a direct quotation or paraphrase to make sure that the paraphrase reflects accurate information, check the original source, if any.
- Was there any direct quotation or paraphrased information in this paragraph?
 - Was the quotation supporting the argument the writer has made?

Paragraph#3

1. Read the first sentence of the third paragraph.
- Did your partner use any transitions to connect this paragraph with the previous one? If not, can you suggest one?
 - Was there a topic sentence that corresponds to the second main idea in the thesis statement? Make a suggestion, if not.
2. Read the rest of the third paragraph.
- Were there any concrete examples or explanations in this paragraph to support the main idea of this paragraph?
 - Were the concrete examples or explanations well balanced (in terms of sentence length and depth of discussion)?
 - Were the concrete examples or explanations relevant and sequenced properly?
3. If your partner wrote a direct quotation or paraphrase to make sure that the paraphrase reflects accurate information, check the original source, if any.

- Was there any direct quotation or paraphrased information in this paragraph?
- Was the quotation supporting the argument the writer has made?

Paragraph#4

1. Read the first sentence of the fourth paragraph.
 - Did your partner connect well to the previous paragraph? If not, can you suggest a transitional word?
 - Was there a topic sentence that corresponds to the third main idea in the thesis statement? Make a suggestion, if not.
2. Read the rest of the fourth paragraph.
 - Were there any concrete examples or explanations in this paragraph to support the main idea of this paragraph?
 - Were the examples or explanations relevant and sequenced properly?
 - Did your partner use pronouns and paraphrase to avoid repetition?
3. If your partner wrote a direct quotation or paraphrase to make sure that the paraphrase reflects accurate information, check the original source, if any.
 - Was there any direct quotation or paraphrased information in this paragraph?
 - Was the quotation supporting the argument the writer has made?

Paragraph#5

1. Read the conclusion.
 - Did it begin with a restatement (but different wording) of the thesis statement? If not, suggest one.
 - Did the conclusion move to more general statements on the topic as a whole?

- Did the conclusion contain too much irrelevant information to the thesis statement? If yes, make a suggestion.

Overall

- What did you learn from reading this essay, either in language use or content?
- Was there anything nice you want to say about this essay?
- Were there any grammatical errors or inappropriate word usage?

Grammar Checklist

On your typed draft, work through the checklist below to make sure your draft is ready for final draft submission.

Capitalization

- ☐ I capitalized the first letter at the beginning of every sentence.
- ☐ I capitalized all proper nouns.
 - A proper noun is a specific name for a particular person, place, or thing (e.g.,

President Obama)

Punctuation & Commas

- ☐ I ended each sentence with the appropriate punctuation (period, question mark, exclamation point).
- ☐ For every sentence that begins with an introductory phrase or clause, I put comma after the introductory element.

After the game, the team went to eat pizza.

When the rain started pouring, we were returning from dinner.

Punctuation & Commas

- ☐ I used commas to separate items in a series.
 - The recipe required milk, eggs, flour, and water.

- ☐ I used a comma to separate two independent clauses connected by a FANBOYS conjunction.

- Jeremy went to the store, and Maggie stayed at home.

- ☐ I used commas before and after a parenthetical phrase or clause.

- The dog, still wet from the rain, jumped on the couch.

- ☐ I collected all comma splices. (A comma splice is when two independent clauses are joined together only by a comma WITHOUT a FANBOYS conjunction.)

Wrong: The cake tasted funny, my grandmother made it.

Correct: The cake tasted funny. My grandmother made it.

Miscellaneous

- ☐ I've made sure to correctly use there, their, and they're; your and you're; and its and it's.
- ☐ I've corrected all misspelled words. (Hint: Run your text through Grammarly to identify misspelled words.)
- ☐ I've corrected all run-on sentences.
- ☐ I put a space after the end punctuation of each sentence.

Wrong: I went to the store.I bought some eggs.

Correct: I went to the store. I bought some eggs.

APPENDIX G

Quantitative Rubric for Evaluating L2 Essays

(Adapted from Ferris and Hedgcock's (2014) Holistic Scoring Rubric)

Rating				
5	4	3	2	1
The text directly addresses the writing task and clearly exposes its purpose.	The text addresses the writing task, exposing its purpose with reasonable clarity.	The text addresses the writing task, but in ways that lack clarity and explicitness.	Only marginally addressing the writing task, the text's purpose is difficult to identify.	The text does not address the task or fulfill its purpose.
The text is logically organized, its coherence marked by explicit transitions.	The text shows solid organization and use of coherence markers.	Through reasonably arranged, the text lacks overt coherence markers and cohesion.	The text lacks obvious rhetorical structure; coherence and cohesion are weak.	The text lacks organization, coherence, and cohesion.
The text presents solid supporting material that is explicitly connected to its purpose.	The text presents supporting material that is related to the text's main purpose.	Supporting material may be underdeveloped due to a lack of specificity or examples.	Supporting material is inadequate, unclear, or irrelevant.	Supporting material is ineffective or altogether absent.
Choice of vocabulary is excellent.	Vocabulary use is above average.	Vocabulary use is average for intermediate-level L2 student writer.	Vocabulary use is weak.	Vocabulary use is extremely weak.
Grammatical errors are minor and infrequent.	The text contains minor grammatical errors that do not interfere with the main idea.	The text may contain grammatical errors that compromise its comprehensibility.	Frequent grammatical errors compromise the text's comprehensibility.	Major grammatical errors abound, seriously compromising comprehensibility.
Spelling and punctuation are generally accurate.	Errors in spelling and punctuation occurs but do not distract the reader.	Spelling and punctuation errors may distract the reader.	Errors in spelling and punctuation consistently distract the reader.	Spelling and punctuation errors are frequent and highly distracting.

APPENDIX H

Interview Guide for Students

Purpose: the semi-structured interview will be used to elicit data regarding perceptions of pre-service EFL teachers towards CMPR and CMC features, as implemented in this study, as well as their writing self-efficacy.

Time of Interview: 30 minutes

Date: At the end of the study

Place: Zoom

Interviewer: The researcher

Interviewee: Pre-service teacher 1, 2, 3, 4

Questions:

1. Could you describe your writing experience using CMPR? (General Overview)
2. Could you tell me how you gave peer feedback during the CMPR activity? (General Overview)
3. Could you tell me how you received peer feedback during the CMPR activity? (General Overview)
4. Could you describe what happened during the CMPR, from the beginning to end? (Specific Tour)
5. Could you show me how you used Zoom features to screenshare your paper during CMPR? (Guided Tour)
6. Could I watch you use *Microsoft Word's* Track Changes and Comments to review a paper via Zoom screensharing? (Task-Related Grand Tour)
7. Could you describe.....? (depending on students' answers to grand tour questions)
8. Can you give me an example of your peer giving you a hard time? Please explain.
9. Can you give me an example of your hard time using *Microsoft Word's* Comments and Track Changes? Please explain.
10. Can you give me an example of your hard time using Zoom? Please explain.

APPENDIX I

Interview Guide for Teacher

Time of Interview: 30 minutes

Date: At the end of the study

Place: Zoom

Interviewer: The researcher

Interviewee: The writing instructor

Questions:

1. Could you describe the focus of this writing course and how did you provide the writing instruction?
2. Could you describe how your students wrote and submitted their drafts in this course and how feedback was given to them?
3. How often did you give feedback to your students' papers? Why?
4. How often did you use peer feedback for this writing course? Why?
5. Have you ever used peer feedback in this writing class or other writing classes? Why or why not?
6. What types of technology did you use to facilitate your writing instruction in this course?
7. Have you ever used *Microsoft Word's* Track Changes and Comments? If yes, why didn't you use them in your writing classes?
8. During my research project, did the students talk to you about the CMPR activities? If yes, please explain.
9. Could you describe how the students reflected on their learning/writing through CMPR, from the beginning to end of this research project?
10. During my research project, did the students report any difficulties/challenges about the use of CMPR? If yes, please explain.

APPENDIX J

Finalized Calendar

Week	Day	Activity
Week 1 Nov 9-15, 2020	Thursday-Saturday, Nov 12-14, 2020	- Consent form was emailed to all participants on 11/11/20 and completed within 3 days after that.
	Thursday-Sunday, Nov 12-15, 2020	- After each participant provided consent, the pre-questionnaire was administered.
Weeks 2 Nov 16-22, 2020	Tuesday, November 17, 2020 5:00-7:00 PM (Thai) Day 1 (2 hr.)	- Meeting with all four students for the CMPR orientation - The writing cycle started here: (1) brain storming/pre-writing task (2) writing 1 st draft (homework)
	Wednesday, November 18, 2020	-Students' first drafts were submitted via encrypted emails.
	Day 2 (3 hrs.) Saturday, November 21, 2020 5:00-8:00 PM	The 6-hour CMPR training started here - CMPR activity - Meeting with all participants for three hours
	Day 3 (3 hrs.) Sunday, November 22, 2020 9:00-12:00 AM	- CMPR training - Meeting with all participants for three hours
	Day 4 (3 hrs.) Sunday November 22, 2020 5:00-8:00 PM	- CMPR training - Meeting with all participants for three hours - Students submitted the assignments via emails.
		The writing cycle continued here: (3) CMPR activity (homework) - -Reviewing their peer's first draft using <i>Word Track Changes & Comments</i> - Using the peer review sheet with the grammar checklist to guide during the review (written comments also needed) - Grading peer's work using the writing rubric

Week	Day	Activity
Week 3 Nov 23-29, 2020	Day 5 (4 hrs.) Tuesday November 24, 2020 10:00-12:00 PM (Pair 1) 5:00-7:00 PM (Pair 2)	The writing cycle continued here: (4) CMPR activity (in pairs) for 60 mins per person - Discussing peer feedback via <i>Zoom</i> (5) Writing 2 nd draft - All students revised their drafts and submitted the second drafts via emails.
	Day 6 (2 hr.) Friday November 27, 2020 6:00-6:30 PM (Student 1) 6:45-7:15 PM (Student 2) 7:30-8:00 PM (Student 3) 8:30-9:00 PM (Student 4)	(6) Researcher-writer conference (30 mins/person) and - Students were assigned to write the final draft (post-test) via encrypted emails.
Week 4 Nov 30-Dec 6, 2020	Monday, November 30, 2020	- The post-questionnaire link was sent to all students after they submitted their final drafts. -It took about 15 mins to complete the questionnaire.
Week 5 Dec 7-Dec 13, 2020	Day 7	-Individual interview with the researcher approximately 30 minutes per student/teacher via <i>Zoom</i>

APPENDIX K

All Codes from Coding Cycles

Participant	CMPR Process	Needs of CMPR Training	CMC tools/Resources	Writing abilities/self-efficacy
Betty	<p>Finding CMPR useful for papers (CMPR)</p> <p>Peer review helps see errors that can't be seen when working alone (CMPR)</p> <p>Receiving useful peer feedback (Peer feedback)</p> <p>Feeling surprised with a lot of peer feedback received/errors made on first draft (Peer feedback)</p> <p>Feeling positive with peer giving feedback (Peer feedback)</p> <p>Receiving detailed, constructive, and useful, feedback from peer with explanations (Peer feedback)</p> <p>Understanding errors through peer comments/discussion (Peer feedback)</p> <p>The CMPR activity was useful (CMPR)</p> <p>Peer review helps identify errors that can't be seen when working alone.(CMPR)</p>	<p>New experience with Zoom (Lack of knowledge)</p> <p>New experience with <i>Word Track Changes</i> and Comments (Lack of knowledge)</p> <p>Not knowing how to/being able to give feedback without teaching (Lack of knowledge)</p> <p>Learning how to use Zoom features from the researcher (Lack of knowledge)</p> <p>Feeling nervous/not knowing how to use Zoom to join the first meeting (Anxiety)</p> <p>Finding <i>Word Track Changes</i> and Comments convenient tools after being taught to use them (Lack of knowledge)</p> <p>No barrier regarding <i>Word</i> found after being taught during training (Lack of knowledge)</p> <p>Not knowing how to change reviewer's name (Lack of knowledge)</p>	<p>Seeking knowledge/how to join Zoom from previous users (i.e., peers and sister) (Seeking support)</p> <p>The tools used for CMPR were Convenient (Convenience to use)</p> <p>No wasting time to handwrite feedback (Convenience to use)</p> <p>Seeing all faces of peers (Convenience to use)</p> <p>Everyone can see the paper and share ideas synchronously. (Convenience to use)</p> <p>Sharing feelings/knowledge via Zoom features (Convenience to use)</p> <p>Using translation tool when selecting words (Seeking support)</p> <p>Using Grammarly to help check grammar mostly and identify errors (Seeking support)</p>	<p>Learning new vocabs/word choices from peer and the researcher via CMPR (writing abilities)</p> <p>Learning how to sequence/ organize ideas logically (writing abilities)</p> <p>Feeling more fluent in using <i>Word Comments</i> (Writing self-efficacy)</p> <p>Feeling glad when received praise feedback then ignoring it (Writing self-efficacy)</p> <p>Willing to have teacher and peer feedback for future writing classes (Writing self-efficacy)</p> <p>feedback from peer having similar level of English proficiency may help some but not as from teachers (Writing self-efficacy)</p> <p>Feedback from teachers/ experienced writers may enhance the quality of work to</p>

Participant	CMPR Process	Needs of CMPR Training	CMC tools/Resources	Writing abilities/self-efficacy
	<p>Expressing like the steps of doing CMPR in the study (CMPR)</p> <p>Peer feedback received was necessary for improving complete thoughts. (Peer feedback)</p> <p>Finding Peer feedback useful for identifying not found errors (Peer feedback)</p> <p>Finding Peer feedback useful for improving the quality of work (Peer feedback)</p> <p>Ignoring some peer feedback that did not agree with (Peer feedback)</p> <p>Knowing peers sometimes make errors too through reading their work (CMPR)</p> <p>Wishing to have learned this writing activity earlier (CMPR)</p>		<p>Considering/self-checking the feedback received from Grammarly before use (Seeking support)</p> <p>Feedback looking organized/clean via <i>Word</i> (Look/appearance)</p> <p>Being able to reply/give feedback on points immediately via <i>Word</i> (Convenience to use)</p> <p>Sharing issues regarding Internet and sound that peers had (Issues with technology)</p> <p>Issue with peer being unable to send the paper via Zoom chat when working in pair and using screensharing instead (Issue with technology)</p> <p>making comments/response easier via <i>Word</i> Comments (Convenience to use)</p> <p>Not wasting resources/paper (Saving resources/cost)</p> <p>It's convenient to share and discuss the paper with peer(s)</p>	<p>the next level (Writing self-efficacy)</p> <p>Sharing skills needed for improving ideas for essay writing: using peer's comments, reading more essay samples, and listening more</p>

Partici pant	CMPR Process	Needs of CMPR Training	CMC tools/Resources	Writing abilities/self- efficacy
			<p>via Zoom anywhere anytime online. (Convenience to use)</p> <p>Time saving/No need to wait for everyone's availability to travel to gather/meet in person liking CMPR. (Saving resources/time)</p> <p>Not wasting money on gas but Internet (Saving resources/money)</p> <p>Having slow Internet connection sometimes (Issue with technology)</p> <p>Finding Zoom the most important part during CMPR to help understand instructions step-by-step (Zoom/usefulness)</p> <p>Using <i>Word</i> without Zoom could be confusing during the CMPR (Zoom/usefulness)</p> <p>Doing Peer review via Zoom is more convenient than via face-to-face (Convenient to use)</p> <p>Annotation tools on Zoom are</p>	

Partici pant	CMPR Process	Needs of CMPR Training	CMC tools/Resources	Writing abilities/self- efficacy
			<p>convenient (Convenient to use)</p> <p>Not wasting money on pens and highlighters (Saving resources/money)</p> <p>No issue with unreadably handwritten texts when receiving comments/feedback via <i>Word</i> (look/appearance)</p> <p>Receiving organized comments (look/appearance)</p> <p>It was hard to find a Zoom meeting time that worked for everyone for doing CMPR due to busy personal schedule. (Other issues)</p> <p>Issues with Internet connections, Zoom, sound, camera sometimes (Issues with technology)</p> <p>Issues with peer not updating version of Microsoft Word Issue with peer using unlicensed Microsoft Word (Issues with technology)</p> <p>Liking to use computer when writing essay in</p>	

Participant	CMPR Process	Needs of CMPR Training	CMC tools/Resources	Writing abilities/self-efficacy
			English (Convenient to use) Having to wait everyone to join Zoom to start the group activity and sometimes some peers were late (Other issues)	
Alice	<p>Improving the quality of work after being reviewed/edited (CMPR)</p> <p>Feeling CMPR was a useful, practical, and necessary activity/approach for future teachers (CMPR)</p> <p>Thinking face-to-face can be replaced by CMPR if/with the availability of internet and all required equipment (CMPR)</p> <p>Feeling peer review is necessary for improving quality of my own work through the peer's perspectives (CMPR)</p> <p>Peer review helping identify errors I can't find by my own and suggested how to revise them (CMPR)</p> <p>Considering/checking the correctness and appropriateness of peer feedback/comments before deciding</p>	<p>First time using Zoom for instructional purpose (Lack of knowledge)</p> <p>Using Zoom once with friend to test her camera (Lack of knowledge)</p> <p>First time using Word Trach Changes and Comments (Lack of knowledge)</p> <p>Learned how to use track changes and comments (Lack of knowledge)</p> <p>Getting familiar with the PR documents (e.g., the grammar checklist) after being trained /taught (Lack of knowledge)</p> <p>Easy to use scoring rubric after training (Writing Self-Efficacy)</p> <p>Learned the essay structure/organization via the peer review sheet (Writing Self-Efficacy)</p>	<p>Less time consuming via Zoom (Saving resources/time)</p> <p>Having a clear understanding via Zoom discussions (Convenience to use)</p> <p>Feeling that using Word and Zoom interactions during CMPR was convenient and less-time consuming (Convenient to use)</p> <p>No need to travel to meet peers with Word and Zoom (Saving Resources/time & money)</p> <p>Adding comments on the right of peer's paper via Word Comments (Convenience to use)</p> <p>Making in-text revisions on peer's work via Word Comments</p>	<p>Planning to use this writing experience via CMPR to improve own work in the future (writing abilities)</p> <p>Using this writing experience via CMPR to give comments on students' work (writing self-efficacy)</p> <p>Feeling/gaining confident to use the PR documents without confusions after being trained /taught (writing self-efficacy)</p> <p>Being able to check what are missing without reading/looking back the peer review sheet (writing self-efficacy)</p> <p>Being able to discuss and make clarifications about comments and paper via Word and Zoom (writing self-efficacy)</p>

Participant	CMPR Process	Needs of CMPR Training	CMC tools/Resources	Writing abilities/self-efficacy
	<p>whether to use them (Peer feedback)</p> <p>Using the peer feedback/comments as an option that might be used to revise the draft (Peer feedback)</p> <p>Learning from the peer's ideas and using some of them that fit in my context to revise my work (Peer feedback)</p> <p>Thinking the peer feedback received during CMPR improved skills and structural knowledge of writing a five-paragraph essay MOST (Peer feedback)</p> <p>Following the peer feedback that guided about ideas and the five-paragraph essay structure (Peer feedback)</p> <p>Rewriting some sentences that did not make sense, had wrong meanings/L1 influences, and off-topic for peer as options (Peer feedback)</p>	<p>Being able to identify missing parts and improving the quality of work using the peer review sheet after training (Writing Self-Efficacy)</p> <p>Feeling/gaining confident to use the PR documents without confusions after being trained /taught (Writing Self-Efficacy)</p> <p>Getting familiar with/understanding the essay structure through practices using the peer review sheet</p> <p>Thinking grammar knowledge provided during the training plus the existing grammar knowledge were enough to do CMPR</p> <p>Realizing that even with existing grammar knowledge, there were still a lot of grammatical errors on first draft (Lack of knowledge)</p> <p>Grammar knowledge given during the training plus existing knowledge helped improve the quality of work (Lack of knowledge)</p>	<p>(Convenience to use)</p> <p>Not being able to respond to peer comments via "reply" due to having old version of <i>Word</i></p> <p>Making a reply to the peer comment by making a new comment in the next line below it (finding a self-solution) (Issues with technology)</p> <p>Using Annotate (e.g., text, chat) and other Zoom features to help during the peer feedback discussing (Convenient to use)</p> <p>Not being able to send a file via Zoom chat (Issues with technology)</p> <p>Issues with a slow internet connection sometimes and the use of the old version of <i>Word</i> (Issues with technology)</p> <p>Feeling the use of technology in CMPR like <i>Word</i> was useful for people working in teaching career and others</p> <p>Thinking that using <i>Word</i> alone could</p>	<p>Gaining lot of ideas using <i>Word</i> or/and Zoom to review students' work/projects other than CMPR (writing self-efficacy)</p> <p>Willing to use <i>Word</i>'s Track Changes and Comments and Zoom to teach peers so that we can collaborate faster (writing self-efficacy)</p> <p>Being able to accept/reject the peer comments (writing self-efficacy)</p> <p>Willing to use Zoom to communicate with peers more even not for instructional purpose (writing self-efficacy)</p> <p>Being able to self-correct my own grammatical errors (writing self-efficacy)</p>

Participant	CMPR Process	Needs of CMPR Training	CMC tools/Resources	Writing abilities/self-efficacy
		<p>Feeling having more tech issues than other peers (Lack of tech knowledge)</p> <p>Feeling confused sometimes with Days' assignments due to re scheduling by peers and handling with many CMPR documents (Other issues)</p>	<p>get work done but working collaboratively with peers via Zoom made it easier (Convenient to use)</p> <p>Without Zoom could be delayed and time-consuming (Saved resources/time)</p> <p>Thinking both Word and Zoom were important and compatible for CMPR (Convenient to use)</p> <p>Word allowing me to make revisions on drafts (Convenient to use)</p> <p>Zoom helping me see peer's work and discuss peer feedback from home/ anywhere regardless of distancing (Convenient to use)</p> <p>Using Word's spelling and grammar check and the teaching documents gained from the CMPR training as tools to help when giving feedback to my peer (Seeking support)</p> <p>Using a dictionary both online and book to help translating/ look up</p>	

Participant	CMPR Process	Needs of CMPR Training	CMC tools/Resources	Writing abilities/self-efficacy
			<p>meanings of unknown words and their use in contexts (Seeking support)</p> <p>Having internet lagging sometimes caused by a slow internet connection and a slow computer (Issues with technology)</p> <p>Not being able to understand peer 's explanation due to the internet lagging (Issues with technology)</p> <p>Feeling little confused caused by using an outdated version of Word and Thai language (Issues with technology)</p> <p>Not being able to use "reply" to respond to the peer comments (Issues with technology)</p>	
Tara	<p>Receiving the peer feedback that focused on grammar and vocabs (Peer feedback)</p> <p>Providing peer feedback that focused on grammar (Peer feedback)</p> <p>Feeling no need to correct the use of word choices as the peer has</p>	<p>First time using Word's Track Changes and Comments (Lack of knowledge)</p> <p>First time using Word's grammar and spelling check (Lack of knowledge)</p> <p>Being confused with the term first and second draft (Lack of knowledge)</p>	<p>Not using chat to send or receive a file to/from the peer during CMPR (Others)</p> <p>Using lines only to help identify in-text feedback during Zoom discussing (Others)</p> <p>Not using other annotate tools like highlighter during</p>	<p>Knowing how to use Word's Track Changes and Comments (Writing-self-efficacy)</p> <p>Feeling more fluent when using Word's Track Changes and Comments (Writing self-efficacy)</p> <p>Feeling like I am improving my writing after the</p>

Participant	CMPR Process	Needs of CMPR Training	CMC tools/Resources	Writing abilities/self-efficacy
	<p>already used concise words (Peer feedback)</p> <p>Knowing of the areas that needed to work more after the writer-researcher conferencing (CMPR)</p> <p>Not all suggestions from Grammarly used (e.g., tense) (Peer feedback)</p> <p>Changing some words to be more academic and interesting (Peer feedback)</p> <p>Reading all peer feedback/comments received (Peer feedback)</p> <p>Translating new vocabs suggested by the peer if they fit in the context (Peer feedback)</p> <p>Not using all peer feedback/comments+ Not sure about how much the peer feedback/ comments used (Peer feedback)</p> <p>Feeling the quality of work improved via feedback/comments via Word's comments, grammar and spelling check (Peer feedback)</p> <p>Feeling word choices and grammar knowledge improved via CMPR (CMPR)</p>	<p>Learning new grammar knowledge about the use of a comma before FANBOYS via the training (Lack of knowledge)</p> <p>Learning new knowledge about how to write a thesis statement via the training (Lack of knowledge)</p> <p>Forgetting about how to use some features causing the delays (Lack of knowledge)</p>	<p>Zoom discussing (Others)</p> <p>Using Grammarly to double-check when feeling incorrect use of grammar (Seeking support)</p> <p>Using and revising according to <i>Word's</i> Grammar and Spelling Check suggestions (Seeking support)</p> <p>Using an online dictionary to help find meanings of some words (Seeking support)</p> <p>Using Google Translate to help check if the ideas/messages presented/sent correctly as expected (Seeking support)</p> <p>Making clarification via Zoom discussion when misunderstandings occurred (e.g., the peer misinterpreted my paper) (Convenient to use)</p> <p>Preferring CMPR via Zoom to Face-to-face peer review due to less-time consuming (Saving resources/time)</p>	<p>writer-researcher conferencing (Writing self-efficacy)</p> <p>Using the vocabs that found from readings but never used before (i.e., spread, infection, and outbreak) (Writing self-efficacy)</p> <p>Feeling the CMPR very useful for grading future students' paper and providing them feedback (Writing self-efficacy)</p> <p>Willing to apply Zoom and <i>Word's</i> Track Changes and Comments to future classrooms (Writing self-efficacy)</p> <p>Finding the peer review sheet helpful for checking the essay organization (Writing self-efficacy)</p> <p>Finding the grammar checklist helpful for checking missing and errors (Writing self-efficacy)</p> <p>Not finding any barriers regarding commenting peer's work (Writing self-efficacy)</p>

Participant	CMPR Process	Needs of CMPR Training	CMC tools/Resources	Writing abilities/self-efficacy
	<p>Thinking both Word's Track Changes and Comments and Zoom were compatible and important for successful CMPR (CMPR)</p> <p>Thinking peer feedback received during CMPR is very useful for my own work (Peer feedback)</p> <p>Helping one another improve work (CMPR)</p> <p>Paying attention to every received peer feedback like the peer did/Not ignoring any peer feedback (Peer feedback)</p> <p>Helping each other complete the task/goal (Peer feedback)</p> <p>Not accepting the peer feedback/comments that interpreted my work wrongly (Peer feedback)</p> <p>No problems with/caused by peers during CMPR as both agreed to each other (Peer feedback)</p> <p>Feeling CMPR is useful (CMPR)</p>		<p>No need to travel and carry the paper to collaborate with peers (Saving resources/time)</p> <p>Being able to schedule a meeting and conduct anytime online (Convenient to use)</p> <p>Being able to see my original work with changes made by the peer (Convenient to use)</p> <p>Easier to read peer feedback/comments typed via Word than via paper-pencil (Look/appearance)</p> <p>Joining the first Zoom meeting late while the other peers already joined because of a lack of self-preparation (Promptness)</p> <p>Not setting Microphone causing the delay/ during the first Zoom meeting (Issues with tech)</p> <p>Using expired license of Microsoft Word (Issues with tech)</p> <p>Having to reschedule with the researcher a few times because of my business/tight</p>	<p>Willing to continue to use Word Comments for revising papers of others because of its effectiveness (Writing self-efficacy)</p> <p>Willing to use Zoom to evaluate future students' work (Writing self-efficacy)</p> <p>Thinking technology is important to writing instruction (Tech awareness))</p> <p>Referring to the generally used online technology in facilitating instruction during her classroom observation for field practicum (tech Awareness)</p> <p>Planning to use technology to replace traditional writing on blackboard as it is easy to provide examples (Convenient to use)</p> <p>Willing to continue to use CMPR because technology can help revise work (Writing self-efficacy)</p> <p>Being able to criticize the peer's</p>

Partici pant	CMPR Process	Needs of CMPR Training	CMC tools/Resources	Writing abilities/self- efficacy
			<p>schedule (availability)</p> <p>Hearing peer's voices via Zoom helped clarify everything/misunderstandings (Clarification)</p> <p>Asking my peer how to when I first made comments via Word (Seeking support)</p> <p>No internet issues</p>	<p>work better/other than just grammar issues via the peer review sheet (Writing self-efficacy)</p> <p>Feeling the peer review sheet very helpful to guide when reviewing the peer's work after training (Writing self-efficacy)</p>
Nancy	<p>Improving my work through identifying errors by the peer during peer review (Peer feedback)</p> <p>Using a Sandwich feedback method when giving peer feedback to avoid hurting peer's feeling (Peer feedback)</p> <p>Considering the use of tenses not just copy and paste a sentence (Peer feedback)</p> <p>Reading all peer feedback then compare with my original work (Peer feedback)</p> <p>Considering each peer feedback before deciding to accept or reject it (Peer feedback)</p>	<p>First time using Zoom for academic purposes (Lack of knowledge)</p> <p>Not being able to review content of the peer's work without the peer review sheet (lack of knowledge)</p> <p>Knowing what are needed in each paragraph via the peer review sheet/ training (lack of knowledge)</p> <p>Finding the grammar checklist very helpful to guide during the peer review (Lack of knowledge)</p> <p>Being able to provide better feedback and comments via the grammar checklist (Lack of knowledge)</p> <p>Forgetting to turn off Track Changes while making changes might</p>	<p>Finding Track Changes and Comments in CMPR much more convenient than revisions via traditional printed paper-pencil revisions (Convenient to use)</p> <p>Less-time consuming to discuss work via Zoom than using Word alone (Saving resources/time)</p> <p>No need to look back and forth to see which revision made by peer (Convenient to use)</p> <p>Seeing each other and having real time discussions via Zoom (Convenient to use)</p>	<p>Learning to use new academic words that are not familiar with to improve my work (Writing self-efficacy)</p> <p>Thinking teachers need to provide feedback to students' writing, so they know and learn from their mistakes to improve their writing ability (Writing self-efficacy as teacher)</p> <p>Feeling more fluent and familiar with Word Track Changes and Comments (Writing self-efficacy)</p> <p>Possible to use Word Track Changes and Comments and Zoom with students</p>

Participant	CMPR Process	Needs of CMPR Training	CMC tools/Resources	Writing abilities/self-efficacy
	<p>Understanding all peer feedback and comments before the peer feedback discussion via Zoom (Peer feedback)</p> <p>Understanding the received peer feedback more via the peer's explanation/discussion via Zoom (Peer feedback)</p> <p>Using most of the peer feedback to revise the next draft and ignoring/rejecting some of them (Peer feedback)</p> <p>Paying attention to all peer feedback/comments and replying to almost all of them (Peer feedback)</p> <p>Using most of the peer feedback and comments to revise work and adding or combining with self-revisions where the peer overlooked (Peer feedback)</p> <p>Feeling providing and receiving peer feedback online (i.e., CMPR) is fun (CMPR)</p> <p>Thinking providing and receiving peer feedback offline and online (CMPR) might sometimes be done parallelly, but it is</p>	<p>need to accept changes later (Lack of knowledge)</p>	<p>Convenient to discuss work and peer feedback through screensharing via Zoom (Convenient to use)</p> <p>Easy to use available annotate features to discuss peer feedback during the screen shared (Convenient to use)</p> <p>No need to send Word document to peer via Facebook or Gmail (Convenient to use)</p> <p>Preferring to circle words being discussed with peer with the highlight in Zoom Annotate (Convenient to use)</p> <p>Being able to send a file via Zoom chat (Convenient to use)</p> <p>Convenient to make and delete comments via Word Comments (Convenient to use)</p> <p>No need to retype or redelete changes that were accepted because clicking "accept" makes those changes permanents automatically (Convenient to use)</p>	<p>to review peer's work in future classroom depending on situation (Writing self-efficacy)</p> <p>Liking to use technology to facilitate instruction as a teacher (Writing self-efficacy)</p>

Participant	CMPR Process	Needs of CMPR Training	CMC tools/Resources	Writing abilities/self-efficacy
	<p>easier and less-time consuming via online peer review (CMPR)</p> <p>Liking both traditional face-to-face peer review and online peer review via Zoom (CMPR)</p> <p>Liking both online and traditional writing courses if provided (CMPR)</p> <p>Thinking CMPR extremely helpful to revise and improve my work (CMPR)</p> <p>Thinking the peer feedback is necessary to improve the quality of my work (Peer feedback)</p> <p>Finding out my work was not great as I thought after having my peer review it (Peer feedback)</p> <p>Having my peer review my work was more helpful than working alone (Peer feedback)</p> <p>Thinking the peer feedback/comments during CMPR were extremely useful (Peer feedback)</p> <p>Gaining eye-opening experience with various technology used to facilitate</p>		<p>Feeling the writing rubric was not useful in grading peer's work as giving low score might hurt peer's feeling (Others)</p> <p>Using suggestions by Word's grammar and spelling check to help with grammar issues (Seeking support)</p> <p>Using Cambridge Dictionary App to help search for word choices to replace inappropriate/repetitive words used by the peer (Seeking support)</p> <p>Using Cambridge Dictionary App to check parts of speech of words (Seeking support)</p> <p>Using Google Translate and the dictionary to look up and check words (Seeking support)</p> <p>Using grammar sheets from a previous course to guide grammar structures such as If-Clause (Seeking support)</p> <p>Not using Grammarly</p> <p>Thinking Track Changes and</p>	

Participant	CMPR Process	Needs of CMPR Training	CMC tools/Resources	Writing abilities/self-efficacy
	writing instruction and make providing and receiving feedback easier via CMPR (CMPR)		<p>Comments were more important than peer feedback discussion via Zoom (Usefulness)</p> <p>Thinking Track Changes and Comments helps record and track changes made, so no need to self-memorize them (Convenient to use)</p> <p>Helping to not forget what parts need to be revised (Word/usefulness)</p> <p>Zoom allowed me to show/share my feedback on peer's work or my revised draft (Zoom/usefulness)</p> <p>Not easy to schedule the Zoom (or even face-to-face) meetings for all due to having different availability (availability)</p> <p>Having unstable internet connection during the Zoom meeting (Issues with Tech)</p> <p>The delayed first Zoom meeting caused by a peer not knowing how to log in Zoom (Issues with tech)</p>	

VITA

EDUCATION

Doctor of Education in Literacy (January 2017- present): Sam Houston State University, USA.

Master of Education in English Language Teaching (2012): Mahasarakham University, Thailand

Bachelor of Education in English (First-class honors) (1999): Mahasarakham Rajabhat University, Thailand

Work Experience

TRIO Teacher Support Services (TSS) Program, Sam Houston State University, USA: January 2021-Present

Freshmen Academic Coach/Graduate Assistant

Instructional Systems Design and Technology Program, Library Science and Technology Department, Sam Houston State University: 2019-May 2020

Doctoral Research Assistant

Office of International Programs, Sam Houston State University: 2018-2019

Student Assistant

International Relations Department, Roi Et Rajabhat University, Thailand: 2014-2016

Head of ASEAN Study Center

Faculty of Education, Roi Et Rajabhat University, Thailand: 2013-2015

Head of English Program

Faculty of Education, Roi Et Rajabhat University, Thailand: 2012-2016

Lecturer in English Program

Language Center, Roi Et Rajabhat University, Thailand: 2012-2014

Staff

Talented Students in Languages Program (TSL), Kalasinpittayasan School, Kalasin, Thailand: 2010-2011

Staff/Coordinator

International Student Affairs, Asian University, Chonburi, Thailand: 2005-2006

Coordinator

Teaching Experiences

2020-present: An online adult literacy tutor volunteer teaching EFL writing at Roi Et Rajabhat University, Thailand

2018-2020: An adult literacy tutor volunteer teaching English as a Second Language (ESL) for a Spanish student at Huntsville Public Library

2016-2017: Co-teacher in Community of Practice (CoP) Project sponsored by the US Embassy, Ministry of Foreign Affairs, Thai Government and The Office of Higher Education Commission (OHEC) Thailand and Chulalongkorn University Language Institute, Bangkok, Thailand

2014-2016: Lecturer in Language and Cultures (Postgraduate and Undergraduate/Teaching Certificate study)

2014-2016: Lecturer in English for Early Childhood (Certificate study), Roi Et Rajabhat University, in collaboration with Burirum and Mukdahan Community Colleges

2012-2016: Lecturer in Forms and Usage 1 (undergraduate), Forms and Usage 2 (undergraduate), Basic Translation (undergraduate), English through Drama (undergraduate), English for Communication (undergraduate), English for Study Skills (undergraduate) and general training at Roi Et Rajabhat University

2012-2016: Trainer and organizer in English Development workshops, Teachers Development workshops and English Camps (Community Services)

Presentations

Kaewkaemket, C. (March 2021). The Effects of Peer Review on EFL College Students' Writing Ability. Paper presented at the 2021 Universality of Global Education Conference: Global CommUNITY— Local Strategies and Solutions, Virtual Conference

Kaewkaemket, C. (February 2020). Viewing Peer Review in EFL College Writing Classes through the Multiliteracies Lens: A Content Analysis. Paper presented at the 7th Annual Universality in Global Education Conference, Sam Houston State University, Texas

Kaewkaemket, C., Van De Walker, D. (August 2019). Cultural Perspectives as an International Student. Co-presented at the 16th Annual SHSU Teaching and Learning Conference (TLC), Sam Houston State University, Texas

Kaewkaemket, C. (2017). Providing Effective Feedback in Large Classes. Paper co-presented at Camtesol <https://www.scribd.com/document/348137271/Camtesol>

Kaewkaemket, C. (2016). Providing Effective Feedback in Large Classes. Poster presented at the Oral Presentation Workshop under English Language Support

Project, Lower Mekong Initiative (LMI), Professional Communication Skills for Leaders (PCSL) at Chulalongkorn University Language Institute (CULI), Thailand

Kaewkaemket, C. (2016). CLT as an alternative in English language Classroom. Paper presented at the Oral Presentation Workshop under English Language Support Project, Lower Mekong Initiative (LMI), Professional Communication Skills for

Publications

Kaewkaemket, C. (2012). Thesis entitled: “An Instructional Model to Improve Thai High School Learners’ Reading Comprehension: Integrated Reading Activities with different Task Types and Complexity” Advisor: Asst. Prof. Udorn Wan-arom, Ph.D. Co-Advisor: Pilanut Phusawisot, Ph.D. (Mahasarakham University) Nitaya Klangchanee, Ph.D (Chair, Mahasarakham Rajabhat University) Intisan (Referee, Mahasarakham University)

Awards

May 2015. Outstanding Instructor. Received from the Faculty of Education, Roi Et Rajabhat University, Thailand.

Grants

April-November 2016: Selected to be one of six Thai Junior lectures to participate in a two-year project called Lower Mekong Initiative (LMI) Professional Communication Skills for Leaders (PCSL) Community of Practice (CoP) Project sponsored by The US Embassy, Ministry of Foreign Affairs, Thai Government and the Office of Higher Education Commission (OHEC) Thailand and Chulalongkorn University Language Institute Bangkok, Thailand.

Professional trainings granted included the following:

- Conducted a workshop on “Writing Professional Biography” granted by OHEC and The US Embassy.
- Participated in LMI PCSL CoP Fall Orientation and Workshop, Chulalongkorn University, Bangkok, Thailand. October 8-9, 2016
- Conducted a study on “The Effects of Using Communicative Language Teaching (CLT) to Improve English Language Teaching Ability of EFL Private School Teachers” and presented in the Action Research in ELT for Quality Instruction Conference at Chulalongkorn University Language Institute
<http://www.culi.chula.ac.th/Research/irs2016/Tentative.html>.
- Conference of Lower Mekong Initiative (LMI) Professional Communication Skills for Leaders Project (PCSL) Community of Practice Conference: Poster Presentation by CoP members in five Countries, Bangkok, June 15-17, 2016.
- Workshop of Lower Mekong Initiative (LMI) Professional Communication Skills for Leaders Project (PCSL) Community of Practice (CoP): Oral Presentation Skills Development, April 26-29, 2016.
- Leaders (PCSL) at Chulalongkorn University Language Institute (CULI), Thailand

Community Service

September 2018- April 2019: ESL tutor at Huntsville Public Library.

Professional Development

February 2021: Participated in the 17th Annual Diversity Leadership Conference, Virtual Conference

November 2020: Using the F Word in Your Classroom: Effective Reading Fluency

Instruction by Dr. Chase Young. The Texas Association for Literacy Education (TALE)

Workshop, via *Zoom*

November 2020: The 5 in 10 Research Presentations, College of Education Faculty, Sam

Houston State University, via *Zoom*

September 2020: Completed the 8-Hour Diversity, Equity, and Inclusion (DEI) Training

Course for Beginners, via *Zoom*

September 2020: Completed the 8-Hour Youth Mental Health First Aid Training Course

by Dr. Daphne Johnson, Sam Houston State University, Texas (Awarded a three-year certification as a Mental Health First Aider)

February 2020: Efficiency with Style: Revising Your Manuscript at the Macro & Micro

Levels. Sam Houston State University, Huntsville, TX.

January 2020: Planning & Writing Successful Grant Proposals Workshop. Sam Houston

State University, Huntsville, TX.

March and April 2019: Conducted two online professional development workshops on

peer review for Thai pre-service teachers via *Zoom*

September 2019: Texas Digital Education Summit (#DES19), Sam Houston State

University

2019: The 15th Annual Diversity Leadership Conference at Sam Houston State University,

Texas

2018: Digital Education Summit organized by Sam Houston State University, Texas

September 2018: Hunks, Chunks and Bites: How to Get your Writing Projects Planned

so you Can Get them Completed. Sam Houston State University, Huntsville, TX.

2018: Three Minute Thesis (3MT®) Competition Information Session organized by the Office of Graduate Studies, Sam Houston State University, Texas

January 2016: Workshop of Lower Mekong Initiative (LMI) Professional Communication Skills for Leaders Project: Community of Practice Orientation

January 2016: 36th Thailand TESOL International Conference on “The Changing Landscape of ELT: Empowerment through Globalization”, Pullman Khon Kaen Raja Orchid, Khon Kaen, Thailand.

Languages

Thai (mother tongue), English (fluent), and Lao (fluent).